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PNEUMONIA AND PLEURISY IN EARLY LIFE SIMULATING APPENDICITIS.*

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Attention has been recently called in several quarters to the simulation of appendicitis or peritonitis by pulmonary processes, especially pneumonia and pleurisy. The fact that this simulation often occurred has long been known, but is commonly overlooked, and, inasmuch as the diagnosis is certainly at times extremely difficult, and since operation for appendicitis has even been performed when only pneumonia was present, I have thought it of interest to report a few cases of this nature and to quote those of like sort which have come to my notice in medical literature, limiting myself entirely, at least in detailing cases, to the occurrence of the condition in early life. It is, indeed, at this time that the confusion is most likely to happen, although some cases developing later in life are also met in literature.

Of the cases reported here the first two have already been detailed by me in previous publications; the others have not. Two of them occurred in the private practice of Dr. H. R. Wharton, and the notes of them were kindly given me by him.

CASE 1.—Mary Agnes McC., aged 8 years, admitted to St. Agnes' Hospital Oct. 27, 1893, suffering from chorea. On November 15 she became suddenly ill with very severe abdominal pain and tenderness and with such a marked appearance of some grave condition that the resident physician feared arsenical poisoning. The temperature was elevated, the pulse 170, and the respiration from 80 to 90 and very shallow. There was severe abdominal pain, with tenderness. The details of the condition as reported to me made me suspect peritonitis.

I examined her on November 16 and found that the abdomen was very much distended and tender; there was abdominal pain; the expression of the face was anxious, and the legs were held constantly drawn up in bed. The temperature had risen to 102. The rapidity of respiration combined with its shallowness appeared to be dependent on peritonitis, and several physicians who saw her with me agreed that this was the undoubted diagnosis. There was no cough. A physical examination of the lungs was made, however, as a routine, and to our surprise the upper part of the right lung was found to exhibit pneumonic consolidation. By the evening of the next day all abdominal symptoms had disappeared.

CASE 2.—Simon L., 4 years old, admitted to the Children's Hospital January 19, 1899. He was taken acutely ill on the 14th with obstinate constipation, abdominal pain and distension, and tenderness in the right iliac fossa. Cough was not noted, if present. The physician who saw him had already made the diagnosis of appendicitis, but the child was admitted to the medical wards, inasmuch as operation had been forbidden by the parents.

On examination on the 20th the child was found evidently in much pain; had an anxious expression of face, shallow respiration of from about 30 to over 40 per minute, and held the legs drawn up most of the time. The abdomen was not distended, but was tender in the right iliac region and everywhere rigid enough to make palpation difficult. As far as it was possible to determine no tumor was present. The temperature varied from 103 to 105. Except for a few coarse râles, nothing could be detected on examining the lungs in front. Owing to the great distress of the child, and because the diagnosis of appendicitis seemed so positive, the posterior part of the chest was not examined on this date. On the next day, the 21st, pneumonic consolidation of the left lung was easily found. The abdominal symptoms remained unchanged. On the 22d all abdominal symptoms had disappeared. Crisis occurred on the 24th.

In neither of these cases was there apparently any reason to suspect anything but an appendicitis, or a peritonitis secondary to this. In the light of later experience, however, one sees that certain suspicious symptoms were present. The height of the fever in the second case, and, especially the rapidity of the respiration, ought to have rendered me more cautious in diagnosis. It is certain that in the second case the child would have been at once transferred to the surgical ward for operation if this had been permitted by the relations, and that operation might have been done if a more careful examination had not been made.

CASE 3.—Myer M., 6½ years old, admitted to the surgical ward of the Children's Hospital March 17, 1900, supposed to be suffering from appendicitis and pneumonia, having been ill two days. The exact nature of the symptoms previous to admission is not recorded.

Examination on the 18th showed the abdominal walls tense and everywhere tender, especially on the right side, where the rigidity and tenderness were especially marked. The respiration was from 45 to 55, the pulse over 130 and the temperature from 103 to 104. Breathing appeared to be painful. Examination of the lungs showed slight impairment of resonance over the upper lobe of the left lung in front and of the lower lobe behind, yet nothing very characteristic or diagnostically positive was discovered. On the 19th the temperature was 103, the respiration from 40 to 50. The abdomen was distended and tympanitic, and the epigastrium and the region of the appendix were tender on pressure, and the left iliac region to a less extent. Abdominal pain was constantly present, but less than on the preceding day. The expression of the face was that of pain; herpes was present on the lips; the chest was tender everywhere on percussion. No change in the pulmonary condition is recorded. On the 20th the child was much brighter. The abdominal symptoms persisted, and physical signs of pneumonia of the right lung were very positive. By March 21 all abdominal symptoms had disappeared. There were now, how-

* Read before the New Jersey State Medical Society.

ever, evidences of some degree of pneumonia in both lungs, and the temperature was falling. By the 23d it was normal.

This case was puzzling, not so much to determine the presence of a pneumonia, which was suspected before admission, but because it was considered that the disease was occurring conjointly with appendicitis. Operation was considered when he first entered the surgical ward. I was asked to see him on the 19th or 20th, and determined positively the presence of pneumonia. Experience with the earlier cases made me believe that the abdominal symptoms were referred entirely from the lungs. The later course of the disease appeared to render this unquestionable.

CASE 4.—K. S., male, 7 years old, admitted to the Children's Hospital Nov. 2, 1899, under the care of Dr. H. R. Wharton. He had had at various times more or less abdominal pain, but never severe until three weeks previously, when he had a typical attack of appendicitis as regarded by the physicians in charge of him. The symptoms at the time consisted of severe pain and tenderness in the right side of the abdomen, especially at McBurney's point. fever, constipation and restlessness. He recovered partially, but the tenderness is said to have remained. On October 30, three days before admission, he had had a recurrence of pain, and again on November 1. There had been no vomiting at any time. Fever was said to have persisted since the attack three weeks before. On admission the temperature was 103, respiration varying from 32 to 80, and the pulse from 132 to 196. The abdomen was distended, tender and somewhat rigid. These symptoms were especially marked on the right side. There was also bronchial respiration over the entire lower lobe of the left lung. The attending physician had in person taken the child to the hospital in order to have an operation for appendicitis performed. On refusal by the surgeon to do this he became very angry, disputed the diagnosis of pneumonia, said he had brought the child for the sake of operation solely, and would remove him if it was not performed, and used other language more forceful than polite. He was requested to go to the ward to examine the patient himself again. This he did—and then apologized.

By the evening of the same day the temperature had fallen to 99.2. No further abdominal symptoms were recorded, and the pneumonic consolidation rapidly disappeared.

This case hardly needs comment. It shows how absolutely one may be deceived by the pseudo-appendicular symptoms unless careful study of other parts of the body is made.

CASE 5.—Walter E. C., 11 years old, admitted to the Children's Hospital to the service of Dr. Wharton on Nov. 25, 1901. He was taken ill November 22 with vomiting, headache and pain in the abdomen. The latter soon became localized at McBurney's point and continued until the 24th, being so severe that he lay awake crying during the night of the 23d. There was fever and the bowels were constipated. Two well-known physicians of Philadelphia, one of them a surgeon, had seen him and made the diagnosis of appendicitis. On examination in the hospital the temperature ranged from 103 to 104 or more, the respiration from 40 to 55 and the pulse from 95 to 130. There were no certain symptoms of appendicitis discoverable, but a well-developed croupous pneumonia of the base of the right lung was found, and he was transferred to the medical ward to the service of Dr. F. A. Packard. By this time the principal pain complained of had shifted to the right shoulder. There was also pain in the right side and in the epigastrium, but none had been present in the right iliac region since the evening of the 24th. The epigastric pain persisted until the 27th, when the temperature fell by crisis. After this date the pain grew less.

By the time the child reached the hospital the change in the locality of the pain had removed some of the difficulty in diagnosis. It is to be noted that the physical signs of pneumonia were developed at the time of entrance.

The next case is not so characteristic an example of the likeness of appendicular pneumonia to appendicitis. The child was admitted, it is true, for appendicitis, but this diagnosis was promptly corrected.

CASE 6.—Elmer W., 8 years old, admitted to the Children's Hospital May 8, 1900, in the service of Dr. F. A. Packard. He had wakened in the early morning of May 4 with fever and vomiting. Constipation, fever and cough continued from this date. For two days there had been pain in the right side. Examination showed the eyes sunken, the knees drawn up, the abdomen distended but not tender, frequent cough, temperature 103, respiration from 35 to 45, pulse from 140 to 170, pain in the right side of the thorax, and physical signs of pneumonic consolidation of the right lung. The temperature fell by crisis on the 9th.

The only suspicious symptoms in this case were the sunken eyes, distended abdomen and the drawing up of the legs, pointing toward abdominal disease. The diagnosis, however, was unattended by difficulty.

The following two cases were seen by Dr. H. R. Wharton in his private practice, and kindly submitted to me by him.

CASE 7.—Boy 15 years old, seen in consultation, a diagnosis of appendicitis having been made, and Dr. Wharton having been called for the purpose of operating. There were pain in the right iliac fossa and continued high temperature. Examination showed some rigidity of the right rectus muscle, and much tenderness on pressure in the region of the appendix. Further examination, however, showed consolidation of the right lung. The presence of appendicitis was excluded. The abdominal symptoms promptly disappeared, and the child passed through an ordinary case of croupous pneumonia, terminating in recovery.

CASE 8.—Boy 8 years old, who for nearly a week had had severe abdominal pain, particularly in the right iliac fossa. Dr. Wharton was called in consultation on the sixth day of the disease, the diagnosis of appendicitis having been made and operation being desired. The symptoms pointed to disease of the appendix, but it was noticed that the respiration was quite rapid. Examination of the chest revealed the presence of pleural effusion. This later became purulent and ruptured into a bronchus, the symptoms of appendicitis meantime having disappeared. Resection of the rib and drainage of the empyema was required later. Recovery followed.

Cases occurring in children and reported in recent literature have been multiplying so rapidly that I can give but the briefest synopsis of those which have come to my notice. There is no doubt that a careful search of the older literature would show more extended references to the condition, with illustrative cases, than is ordinarily supposed.

1. Fenwick (*Lancet*, 1893, Vol. ii, p. 79) reports 1 case.

Boy of 13 years was suddenly attacked with severe abdominal pain, vomiting and faintness after a long walk. In a few hours he became delirious. On the next day he was found to have fever, with a temperature of from 102 to 106, pulse 36, herpes on the lips, rapid respiration, occasional short, dry cough, considerable abdominal pain and tenderness and rigidity, especially in the umbilical and left lumbar regions. The legs were drawn up in bed. Nothing abnormal was discovered in the chest. Vomiting continued troublesome, and the delirium gave place to stupor. On the third day all the symptoms improved greatly, and dulness at the left base behind, with impairment of the respiratory murmur, was discovered. Improvement continued, and the abdominal tenderness disappeared to a large extent. The temperature reached normal in three days. Later, pleural effusion was found.

Four other cases were reported, all in adults. In all the symptoms pointed distinctly toward inflammation in the abdomen, but the disease appeared to be dia-

phragmatic pleurisy. In two of the cases pleural effusion developed. In another the autopsy showed extensive involvement of the diaphragmatic pleura.

2. Morse (*Annals of Gynec. and Pediat.*, 1897) reports 3 cases.

(A) Boy of 7 years. A blow in the abdomen was followed soon by faintness, nausea and vomiting. The next day nausea, headache, pain in the abdomen, constipation, slight fever and slight abdominal distension and tenderness developed. Examination of the lungs was negative. The abdominal pain and tenderness increased, especially in the right iliac region, with slight dulness there. Respiration and pulse were rapid, the temperature was high, and there was a constant hacking cough. Appendicitis was suspected. On the fourth day of the attack physical signs of pneumonia were well marked over the right lower lobe, the abdominal symptoms disappearing.

(B) Boy of 8 years had headache, slight abdominal distension and tenderness, constipation, rapid respiration and a temperature of 105. Nothing was found in the lungs. Vomiting occurred in the night, and on the next day there was slight cough and the abdomen was much distended and tender, especially on the right side. The examination of the lungs was still negative. Up to the sixth day of the disease the condition was the same. On this date the respiration became more rapid and painful, the cough increased, pain in the chest developed, physical signs of pneumonia of the right lower and middle lobes were found, and all abdominal signs disappeared.

(C) Girl of 3 years, taken ill suddenly with fever and abdominal pain. On the next day she vomited, had continued abdominal pain, but no cough. Seen thirty-six hours after the onset, the temperature was found to be 39.9 C., the respiration and pulse rapid, but nothing abnormal was found in the lungs. On the fourth day of the attack solidification of the left lower lobe was discovered.

Morse considers the occurrence of pneumonia with initial abdominal symptoms not uncommon. He says that the abdomen has been twice opened for appendicitis in children within the past few years by prominent surgeons in Boston when the trouble was really pneumonia. He believes that the sudden onset with high fever and rapid respiration should suggest pneumonia, even in the presence of abdominal symptoms and the absence of cough.

3. Guinon (*Bull. de la Soc. de Paris.*, 1901, p. 77) reports one case.

Girl of 13½ years, had had fever, headache and pain in the right side of the chest for about eight days before admission to the hospital. On the day after admission she exhibited an anxious expression of face, sunken eyes, pain in the right side of the abdomen with tenderness at McBurney's point, little cough, no dyspnea, no physical signs in the chest. The case was supposed to be appendicitis, but firm pressure with the flat of the hand showed no tenderness and no increased resistance, although sudden pressure with the finger-tip gave pain. For two days more the diagnosis remained uncertain, pain persisted and positive signs of pneumonia were found at the right apex. The temperature fell by crisis in the evening, and on the next day the abdominal symptoms disappeared and the physical signs of pneumonia throughout the right lung were positive.

4. Massalongo (*Riforma Medica*, 1901, 711) says that he has observed 4 cases in children of from 5 to 12 years in which pneumonia simulated appendicitis. He recalls 5 cases in which operation for appendicitis was done and the organ found entirely sound, the real disease being pneumonia.

He calls the condition pseudo-appendicular pneumonia and dwells on the difficulty in diagnosis which lasts until after the third or fourth day, by which time the abdominal symptoms lessen and the physical signs of pneumonia are liable to be detected. The pain is projected by way of the sympathetic and the spinal cord to the twelfth intercostal nerve.

5. Richardson (*Boston Med. and Surg. Jour.* 1901, April 17, p. 399) reports 5 cases in children.

(A.) Boy of 6 years, had for three days right lumbar pain, persistent vomiting and headache. On the third day a tense abdomen and right iliac tenderness were found, and the temperature was 105.5: On the fifth day the respiration was 40, the abdomen distended, the legs drawn up, the eyes sunken, and the general appearance bad. A diagnosis of appendicitis was made. On the sixth day the appendix was removed, but nothing of moment was found. Dyspnea and cough then developed, followed by empyema. He says that the case was one of pleurisy simulating appendicitis.

(B.) Boy 4 years old. On the second day there was abdominal pain, cough, and a temperature of 101, and appendicitis was thought of. On the third day pneumonia of the left lung was suspected. There was much pain in the epigastrium and in the left shoulder; the respiration was 42 and the temperature 105. On the fifth day symptoms suggestive of pneumonia, but not positive, were found. On the sixth day there was acute abdominal pain, constant in the region of the appendix. The abdomen was distended but not hard, with dulness in the right iliac region. The pain lasted several days and then disappeared. The final diagnosis was pneumonia of the left lung.

(C.) Girl, 5 years old, suddenly developed abdominal pain, which continued on the next day chiefly in the right iliac fossa, with a temperature of 104.4. Fever and pain diminished after ten days, but a little tenderness remained somewhat longer. About a week later pain and fever returned, appendicitis was thought of, and Dr. Richardson was summoned to operate. He found pneumonia of the right lung and tenderness along the course of the lower intercostal nerves. There had been no suspicion of the existence of pneumonia.

(D.) Boy of 4 years was attacked by cough, restlessness, fever, accelerated respiration, constipation and slight distension of abdomen. Nothing abnormal was found in the lungs. The condition continued, and on the eighth day the child developed abdominal pain, great tenderness over McBurney's point, and rapid respiration. Dr. Richardson was called in on the ninth day on account of suspected appendicitis. He found vomiting, severe abdominal pain, tenderness in the right iliac fossa, distension, but no rigidity. Operation was deferred. On the tenth day pneumonia was discovered, and the abdominal symptoms disappeared rapidly.

(E.) Girl of 7 years had had abdominal pain, fever, rapid respiration and cough for two days. On the third day the cough ceased, and on the fourth day severe abdominal pain developed, which disappeared, but left abdominal tenderness. Appendicitis and peritonitis were suspected. Examination on the fifth day showed tenderness over the appendix, no abdominal rigidity, a temperature of 104 to 105, and respiration of 40. The diagnosis was very uncertain, and operation was delayed. Signs of pneumonia were found the same evening.

Richardson also describes a case in an adult male brought to the hospital for abdominal operation. In a few days pneumonia was found.

He says that in acute right-sided diseases of the thorax the symptoms of appendicitis may be so simulated that a surgeon may be completely deceived. It was only his experience in the first case which kept him from operation in the others. The high temperature and rapid respiration are the most assuring symptoms.

6. Hampeln (*Zeitschr. f. Klin. Med.* 1902, 448) reports 5 cases, all in young adults and showing the most typical symptoms of sudden acute abdominal conditions. Collapse was present in some. In all the symptoms simulated peritonitis or intestinal occlusion.

7. Satullo (*Gaz. degli Ospedali*, 1902, xxiii, 757) reports 3 cases, all in adults. In all there was severe

pain in the right iliac fossa with an exceptionally high temperature, running from 43 to 44 C. at the maximum. It was only after several days of observation that the diagnosis of pneumonia was possible. Satullo designates the condition appendicular pneumonia, and says that pneumonia may begin with symptoms of acute appendicitis and the diagnosis be uncertain for three or four days. Pain at McBurney's point is reflex and is transmitted along the anterior branches of the twelfth intercostal nerve.

8. Barnard (*Transac. Clin. Soc. Lond.*, 1902, xxxv, 122) reports 2 cases in children.

(A). Girl of 11 years, had had some abdominal pain with vomiting during three days. When seen on the fourth day the temperature was 103.6, the respiration 40 and painful; there was tenderness in the right iliac fossa, abdominal rigidity, and constipation. Four days after admission obscure signs of pneumonia of the right base were found. The temperature fell by crisis this day, but rose again, and signs of diaphragmatic pleurisy developed.

(B.) Boy 10 years old, had been ill for two days with abdominal pain and vomiting, following a blow on the abdomen and the lower part of the chest. He was admitted to the hospital for acute traumatic peritonitis. Examination showed the abdomen distended, rigid, tender; the legs drawn up; constipation; a temperature of 99.5, soon rising to 103; the respiration 44, and the throat negative. On the next day undoubted signs of pleuro-pneumonia of the right base were found. Empyema developed later.

Four other cases are reported; one in a girl of 17 and three in men, in which severe abdominal symptoms were produced by pneumonia or pleurisy. In the case of the girl the diagnosis of perforating gastric ulcer had been made, and operation was performed, but no signs of this condition were found. On the next day physical signs of pneumonia of the right base were found. In the case of one of the men operation was performed for supposed laceration of the spleen from trauma, the symptoms being due in reality to a traumatic pleurisy of the left side. The two other cases exhibited symptoms of peritonitis dependent on the presence of pyopneumothorax.

Barnard refers to the fact that the older writers recognized the simulation of abdominal diseases by pneumonia or pleurisy. He speaks of cases reported by Andral and Fagge. He says that the relaxation of the abdominal walls with each inspiration, the rapid respiration, the absence of weak or irregular pulse, the fact that the tenderness is superficial and disappears under firm pressure by the flat of the hand, and the sudden high elevation of temperature speak against peritonitis and for pulmonary disease.

9. Comby and Zielinski (*Arch. de Med. des Enf.* 1902, 741) report 1 case.

Boy of 8 years was attacked suddenly by vomiting, abdominal pain, constipation and fever. On the next day there was a temperature of 39.3 C., an anxious expression of face, pain and tenderness on the right side of the abdomen, no cough, and nothing abnormal in the lungs. On the fourth day vomiting and distension of the abdomen developed. Appendicitis was thought of, but beginning physical signs of pneumonia of the right side were found. Crisis occurred on the seventh day.

The writers caution against an early diagnosis based on what appear to be appendicular symptoms. There should be increased muscular resistance and deep induration to justify the diagnosis of appendicitis.

10. Cozzolino (*Gaz. degli Ospedali*, 1903, xxiv, 45) reports 1 case.

Girl of 3 years was suddenly attacked by high fever, severe abdominal pain, especially on the right side, vomiting and anorexia. Examination on this day showed the child lying on the right side with thighs strongly flexed, great abdominal tenderness and pain, temperature of 39.7 C., pulse 150, rapid respiration, slight dyspnea, dry cough and constipation. She vomited during the examination. Practically nothing abnormal was found in the lungs. After much persuasion palpation of the abdomen was permitted; firm, steady pressure with the palm overcame the muscular contraction, and nothing abnormal was found at McBurney's point. On the next day the pain was slightly less; the cough little worse, and vomiting had ceased, and in the evening characteristic signs of beginning pneumonia of the right base were discovered. Abdominal pain slowly diminished, and disappeared by the sixth day.

He believes that pressure with the flat of the hand is a valuable aid in diagnosis, and dwells on the caution to be exercised in basing an opinion on the ordinary train of symptoms of appendicitis.

It is not necessary to review much further the individual cases or the general observations of the different writers as already quoted. There is evident a decided uniformity in most of the statements. They are in entire accord, too, with what the new cases I have reported show. There is, namely, especially in early life, a well-recognized, long-known, but frequently forgotten, tendency for patients with pneumonia or pleurisy to refer to the abdomen the pain really produced in the chest. This is more liable to happen when the disease is situated in the lower part of the thorax, but there is reason to believe that it may also occur when it has attacked the upper portion. It is also more deceptive when the right side of the thorax is affected, since the right side of the abdomen is then liable to exhibit pain, and the presence of appendicitis is suggested. Combined with the abdominal pain in these cases there is also constipation and abdominal tenderness and distension. These symptoms, together with the vomiting which quite commonly ushers in an attack of pneumonia in childhood, easily produce a clinical picture very closely simulating that of appendicitis.

The distinction is to be made by giving due consideration to (1) the sudden rise of temperature to 103 F. or thereabouts, and the tendency to maintain this degree; (2) the acceleration of respiration, which is out of proportion to the pulse rate or the pyrexia; (3) the relaxation of the abdominal walls between the respirations; (4) the diminution or the disappearance of tenderness on deep pressure with the flat of the hand; (5) the possible presence of cough. Finally, no operation for appendicitis should ever be performed until after a careful, or perhaps repeated, examination of the lungs has been made. All these points will, however, frequently fail to make the diagnosis certain, as the experience of some of the able observers quoted has shown.

Ozena of the Bronchi.—Béclère of Paris has observed several cases of a chronic bronchial affection similar to ozena of the nose. In some cases it was consecutive to measles, whooping cough or influenza, in others it was secondary to nasal ozena. In the majority the nasal passages were normal. All were improved or completely cured by intratracheal injections of peroxid of hydrogen and mentholized oil. Unilateral sclerosis of the lung with dilatation of the bronchi is the usual basis for the affection, as can be determined by radioscopy. If the latter is neglected the symptoms may suggest the erroneous diagnosis of a recurring vomica. The *Bull. Soc. Méd. des Hop.*, for June 25, contains Béclère's communication on the subject.

ABDOMINAL PAIN IN PLEURISY AND PNEUMONIA.*

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That a disease in one part of the body may call forth painful sensation in another part is a matter of every-day observation. Pain in the knee may mean hip-joint disease; the passage of a renal calculus may make pain in the testicle or penis; a gallstone may cause pain referred to the neighborhood of the right scapula; pain in the neck or left arm and hand may indicate angina pectoris and coronary sclerosis. While in pleurisy and pneumonia the pain is usually referred to the chest and to the side affected, it may be referred to points remote from the site of the disease, as to the opposite side or to the abdomen. This fact had not escaped the keen observation of our forefathers in clinical medicine. Laennec[1] speaks of the pain of pleurisy as sometimes shifting its place and "occasionally," he says, "from the beginning of the disease, we have a stitch on the right side and pleurisy on the left." Gerhardt also reports this fact. Huss[2] treated of this subject, explaining the pain on the other side by the occasional anastomosis of right and left intercostal nerves. Barnard,[3] who has lately written of abdominal pain in pleuropneumonic diseases, cites Andral, Watson and Fagge as clearly recognizing the fact that severe abdominal pain might have its origin in the pleura, and be misleading unless care were exercised in the physical examination. While several articles have lately called attention to the danger of confusing pulmonary and pleural diseases with peritoneal, this danger is not touched upon by many writers on diseases of the chest or abdomen, nor has it among practitioners of medicine and surgery the general recognition that it deserves. But the subject is well worth emphasizing. For in these days, when even the recent graduate stands ready to attack the appendix of every individual the moment there is right iliac pain, tenderness and rigidity, with fever, the seriousness of a mistake in diagnosis in a case of this sort is plain. This, then, is my excuse for presenting a subject that is not new.

The lower six intercostal nerves—the anterior divisions of the dorsal nerves—supply the abdominal wall, as well as a part of the parietal and diaphragmatic pleura. An irritation, e. g., from inflammation or pressure, in the course of one of these nerves might readily cause a pain that would be referred to the distribution of this nerve, i. e., to the abdominal wall. In cases of pleurisy how much of the irritation is produced by true neuritis is, perhaps, uncertain. By many intercostal neuritis is regarded as of common occurrence in pneumonia and pleurisy.[4] The eleventh nerve is distributed over the iliac region. Pain here would easily make one think of the appendix if on the right side, or if on the left, perhaps of the rarer left-sided appendicular pains. The other nerves would cause pain referred to the umbilical, epigastric or hypochondriac regions and the confusion that might result when we think of the possible significance of such pain in the way of ulcer of the stomach, gall bladder mischief, pancreatitis, etc., is clearly seen.

This close anatomic nerve connection between the abdominal wall, the pleura and the intercostal muscles is indicative of a physiologically intimate relationship, clearly seen in the common function of the thoracic and abdominal muscles in the act of respiration. Hilton's well-known law declares that the interior of a joint, the muscles moving it and the skin over the muscular insertions are supplied by the same nerve trunks. This law also applies to the pleura, which, he says, can be compared to a joint. And the muscles to be regarded as moving the joint are not alone the intercostals, but the abdominal as well.[5] Not only may pain of pleural origin be referred to the abdomen, but in their effort to lessen pain and to give the joint, i. e., the pleura, rest, the muscles remain quiet and may even be tense. One can readily understand how the tenseness of abdominal muscles, added to pain, may be deceptive because of the close resemblance to the phenomena of abdominal disease. And how strikingly like the picture of abdominal inflammation may be the combination of pain and rigidity when chilliness, fever, rapid pulse, etc., are also present.

There is still another possible explanation of some of the abdominal disturbances that are seen in pleurisy and pneumonia. The phrenic nerve in its course through the chest lays itself open to the attack of a pleurisy involving the pericardial, diaphragmatic or costal surfaces. This nerve is not solely motor. Henle, Luschka and others regard it as a mixed nerve. Van Gehuchten[6] says that in its course it gives off sensory fibers to the pericardium and to the pericardial, costal and diaphragmatic pleura, its terminal filaments furnishing sensation to the peritoneum covering the interior surface of the diaphragm.

Irritation or inflammation of this nerve, as in pleurisy, may perhaps be an explanation of some of the cardiac and gastric disturbances, the collapse and meteorism because the phrenic has communication with the vagus and the splanchnics. The halting movement of the diaphragm, as well as pain referred to the epigastrium and hypochondrium, may likewise be due to phrenic disturbance. Hampeln[7] advocates this view quite strongly, overlooking too much, as it seems to me, the part played by the intercostals in the production of abdominal pain.

It is not necessary to assume in cases of this sort that the inflammation is in the diaphragmatic pleura, i. e., in the part of the pleura anatomically nearest to the abdomen, though undoubtedly this part of the pleura is often inflamed. Rohrer[8] calls attention to the frequent occurrence of inflammation of the diaphragm itself, and believes that to this is due in part the stitch pain, as well as the pain in the abdomen often complained of, especially in children.

Head,[9] who has done so much to explain referred visceral pain, believes that in certain cases there may be abdominal pain when the lung alone is involved without the pleura, e. g., in bronchitis, tuberculosis or bronchopneumonia. He says that through the communicating branches of the seventh, eighth and ninth dorsal nerves, which branches supply the lungs, impulses originating perhaps in a small inflammatory pulmonary focus may be carried up to the posterior root ganglia. From the abdominal wall normal impulses pass from the epigastric

* Read at the Fifty-fourth Annual Session of the American Medical Association, in the Section on Practice of Medicine, and approved for publication by the Executive Committee: Drs. J. M. Anders, Frank A. Jones and W. S. Thayer.

1. Laennec: Treatise on Diseases of the Chest, etc., Forbes Trans., p. 450.

2. Huss: Deut. Archiv f. kl. Med., ix.

3. Barnard: The Simulation of Acute Peritonitis by Pleuropneumonic Diseases, London Lancet, clxiii, Aug. 2, 1902, p. 280.

4. Fraenzel: Ziemssen's Encyclopedia, Amer. Trans., iv, p. 632, inclines to the view that was held by Beau that intercostal neuritis is a common accompaniment of pleurisy.

5. Hilton: Rest and Pain, reprint of second edition, p. 252.

6. Van Gehuchten: Systéme Nerveux, i, p. 460.

7. Hampeln: Zeitschrift für Klin. Med., xlv, p. 448.

8. Rohrer: Maryland Medical Journal, September, 1902.

9. Head: Brain, 1896. Also Brain, 1900.

and hypochondriac regions to these same ganglia. If, through the abnormal impulse coming from the lung, the ganglia have become disturbed in their function, the normal impulses from the abdomen may be distorted, i. e., misinterpreted, into painful impressions. Head tells Barnard (loc. cit.) that he has seen cases of this sort.

Whatever may be the correct explanation of this abdominal reference of the pain in thoracic disease, the fact that such pain may occur should be clearly recognized by both physician and surgeon. While infrequent, it is more than a curiosity, and it is not so rare that it does not deserve a place in the symptomatology of these diseases.

ILLUSTRATIVE CASES.

I wish by brief reference to cases that have come under my observation, and then by reference to the experience of others, to show that this pain may occur, that it may be a misleading symptom, but that by care it generally permits of a correct interpretation.

In the pneumonia of children abdominal pain is common. The sudden onset with severe pain, fever and vomiting, with the tenderness and distension of the abdomen, make the resemblance to local or general peritonitis striking.

A year and a half ago I was called by two physicians to see a child of three to decide as to the advisability of operation for appendicitis. The history was, as I have stated, sudden abdominal pain, vomiting, high fever, tympanitic and tense abdomen. Yet the cough, expiratory grunt and rapid respiration were plain, as were the physical signs of consolidation of the left lower lobe. Later a pneumococcus empyema developed, healing under drainage.

In this case, as so often happens to us all, the attention had been riveted on the part of the body in which the brusque initial symptoms had appeared, and the later symptoms of trouble in another part of the body, though plain to one new to the case, were thus overlooked.

The lobe involved to produce this pain is not necessarily the lower lobe.

Feb. 22, 1902, I saw with Dr. Klein, a girl of seven years, whose pneumonia began with vomiting, pain and tenderness in the right iliac region, temperature 103, and in whom Dr. Klein found the next morning signs of consolidation of the right upper lobe. A typical pneumonia with high fever, 106, and migration to the middle lobe followed. At the time I saw her the upper and middle lobes alone were solidified.

The same abdominal pain in a left upper lobe pneumonia was present in a 6-year-old child seen with Dr. B. H. Chamberlin, March 12, 1902. The mother described it as "cramps in the bowels." In these upper lobe cases the explanation of the reference of the pain to the abdomen may be that of Head, of Hampeln, i. e., through the phrenic nerve, or that the pleurisy and accompanying neuritis may be more extensive than the anatomic boundaries of the lobe that is solid, i. e., may involve the lower intercostal nerves.

While in conversation with physicians, I have found some who expressed surprise at, or even unbelief in the onset of pneumonia with sharp abdominal symptoms. I have found many who regard abdominal pain as an important early symptom of pneumonia in children. Some writers on pediatrics are silent regarding that point. Others clearly recognize it, e. g., Baginsky, Henoch, DeMussy and Bouveret. Holt[10] refers explicitly to it in the following words:

The pain is frequently referred to the loin, the epigastrium or to any region to which the intercostal nerves are distributed. In a recent case, in a boy of seven years, for the first twelve hours there was intense localized pain in the right iliac fossa, associated with such extreme tenderness as to lead to the suspicion that the case was one of appendicitis.

This will be the proper place, I think, to say a few words concerning pleurisy and pneumonia, coincident with or following abdominal disease. Coincident with or following an appendicitis, a pneumonia or pleurisy may appear, the abdominal and thoracic disease both due to the same cause, e. g., the pneumococcus, or the one being secondary to the other. Gussenbauer showed that from thrombosed veins accompanying intestinal obstruction embolic pneumonic foci could appear in the lung. And lately Sonnenburg[11] has fully discussed the similar embolic origin of pneumonia met with during appendicitis, before or after operation. These cases in which the abdominal pain is accompanied by, and probably due to, definite abdominal disease, do not properly belong in the category of those I am considering. But I mention them as in a given case the possibility of the coexistence of both abdominal and thoracic disease must always be kept clearly in mind, a condition not at all infrequent in tuberculosis, carcinoma or general septicemia.

A few months ago I was called to see a girl of about five years, who was regarded as in too weak and desperate a condition to undergo an operation for appendicitis and peritonitis, from which she was said to be suffering. The case was certainly a puzzling one. I was able to demonstrate clearly an extensive consolidation of the lower right lobe and a portion of the lower left. This had not been overlooked by the physicians. The respiration, temperature, mental condition were suitable for pneumonia. But a severe initial and continuous abdominal pain, a rigid, somewhat tympanitic abdomen and a persistent vomiting made the peritonitis seem probable. Yet careful inquiry into the history showed that within 12 hours of the onset the respiration rate had been 52. Palpation also led me to question the existence of a peritonitis, for with care, and by gentle, steady pressure, it seemed to me that there was less tenderness and less real rigidity than were consistent with the supposed extensive peritonitis. This case, illustrated too, I believe, the truth of Barnard's observation that there is a yielding or softening of the abdominal wall at the beginning of each inspiration in these cases where the pain is of thoracic origin. Medicine and food by the stomach being stopped for a few hours, and opium given, the vomiting ceased. There was in a few days a marked improvement in all respects. But convalescence was slow, with some cough, dullness and râles and signs of delayed resolution. No pus was found by a needle in a suspicious area in the right chest. During this convalescence, for a few days the patient had a distinct rigidity of the lower abdominal wall. A complete recovery ensued, the illness lasting altogether about seven or eight weeks.

I am inclined to regard the case as primarily and even solely pneumonic. Yet it is possible that there was here a simultaneous infection of the lung and peritoneum, or the peritoneum may have been involved after the lung, or vice versa. The slow convalescence with persistent abdominal pain was present in one of Richardson's cases.

Turning now to adults, we find that they may exhibit, though less frequently, the same abdominal pain with pleurisy or pneumonia, and this may simulate a peritonitis.

A young man of about twenty, with sudden abdominal pain and fever had some rigidity in the right iliac region. His physician with whom I saw the case found here a mass concerning whose exact nature he was somewhat in doubt. The possibility of appendicitis was naturally thought of. But he gave a dose of calomel, the mass disappeared, and in twenty-four hours a right lower lobe pneumonia was clearly made out.

10. Holt: Diseases of Infancy and Childhood, second edition, 1902, p. 563.

11. Sonnenburg: Lungencomplicationen bei Appendicitis, Archiv. für Klinische Chirurgie, Bd. lxviii, p. 468.

I once showed a man in a clinic at the County Hospital with right iliac pain and marked friction rubs over the right chest. He had escaped an operation for supposed appendicitis only because he refused to permit it. Several times patients have been sent to the surgical wards from the examining room with the diagnosis of appendicitis when the more careful ward examination by the surgeon has shown the case to be pneumonia. I know of an instance in Chicago where the abdomen was opened for supposed appendicitis, when the whole trouble was a pneumonia unrecognized at the time of the operation, but which had caused symptoms that were regarded as those of appendicitis. I could cite several other cases in which abdominal pain has been a prominent feature in cases of pleurisy and pneumonia sometimes leading to perplexity as to the correct diagnosis. Thus a woman of 37 years with right pleural effusion told me that her trouble began twenty days before with a pain in the "stomach and side." In another case severe pain just above the crest of the ilium was present for two days before definite physical signs of pneumonia were present.

Dr. Bevan, in October, 1901, operated for me on a patient with acute appendicitis, draining a small abscess due to gangrenous perforation of the appendix. There was a slow but apparently complete recovery. From April to June, 1902, the patient was at her work as a nurse. About June 15, 1902, she had pain in the right chest, temperature 99 to 100. To this she paid little attention, but she became greatly alarmed when she had pain in the old region, i. e., at the site of the scar of the operation. Neither Dr. Bevan nor I could find local evidence for suspecting any recurrence of trouble in the region of the appendix. We thought the pain was referred from the chest in which could be clearly made out a pleural friction and the signs of a small amount of fluid. Within a few days all abdominal symptoms cleared up.

Still another case I may mention. A young lady with a large carbuncle of the upper lip, and with the grave constitutional symptoms attending it—the condition is, as is well known, generally due to the staphylococcus and often fatal—developed a severe pain in the right chest. In the latter location a friction rub with a fine crackling râle and a patch of harsh respiration could be made out. Nothing but the pain over the region of the appendix could be found suggestive of appendicitis, at least to Dr. N. S. Davis, Jr., and myself, who both saw the patient several times, though to some the probability of appendicitis seemed strong. The embolic pneumonic focus was evidently the explanation of the pain. There was ultimate recovery, the later history proving no appendicitis.

Twice I have seen pain referred very accurately to the region of the gall bladder, and the patients in both instances were sure there was cholecystitis, a natural interpretation, perhaps, when we consider that the one patient was a medical student and the other a physician, noted for being poor judges of their own ailments. The student had a right-sided pleurisy. The physician, in addition to the pain, had fever, local tenderness, and was jaundiced. He naturally concluded that he had gallstones and cholecystitis, though the whole trouble was clearly, as the sequel proved, a right lower pneumonia. In this case the pain was pretty definitely located at the point where the tenth rib joins the costal arch, close to the crossing of the parasternal line and the tenth rib, the *bouton diaphragmatique* of some writers. It should be regarded as suggestive of pleurisy, especially of the diaphragm, when this spot is the seat of pain or tenderness upon pressure.[12]

A patient whom I saw with Dr. F. S. Hartmann, was, after nearly two weeks, convalescing from an acute rheumatism and alcoholism when he was seized with a sudden excruciating pain in the upper left quadrant of the abdomen. Dr. Hartmann found him tender to pressure in the left hypochondrium; he soon vomited and became tympanitic. He did not, however, go into collapse immediately after the onset of the pain, and there was no marked perturbation of temperature. Three days later when I saw him, the tympany was less, the vomiting persisted and was grumous, there was an extensive pleurisy to be made out over the left chest, with a dullness and harsh breathing suggestive of pneumonia. The patient was rapidly failing, and died a few hours later. While no positive diagnosis was ventured by either Dr. Hartmann or myself, we both looked on the pleurisy as probably secondary to some subdiaphragmatic lesion—perhaps hemorrhagic pancreatitis or localized peritonitis from an ulcer of the stomach.

The autopsy made the next morning by Dr. H. G. Wells revealed nothing in the abdomen to explain the symptoms except a high grade of gastritis with submucous ecchymoses. Capillary oozing explained the blood in the vomitus. The left pleura was, however, the seat of an acute inflammation especially well marked over the diaphragm. The lung was edematous and congested with several hemorrhagic areas the size of a hickory nut. The blood showed a pure growth of a bacillus of the colon-typhoid group. Its exact nature was not discovered owing to an accident to the cultures, though the study of the organism as far as carried out made it seem probable that it was the typhoid bacillus.

Here was a case where the diagnosis should read as follows: Acute alcoholism, acute inflammatory rheumatism, typhoid (?) bacteriemia, acute pleurisy involving the diaphragm.

These cases will illustrate, I think, the importance of this occasional symptom of thoracic disease. That my experience is not unique I know from conversation with other physicians, and a few illustrative citations from the writings of others will be convincing on this point. Janeway[13] says he has several times been consulted in cases of pleurisy or pneumonia, where, because of the neuralgic pains reflected over the lower right abdomen, there has been entertained the idea of an operation for appendicitis. Osler[14] says that twice in cases of pneumonia he has seen the suspicion of appendicitis raised because of the sudden acute onset of the pain, once in the region of the navel, and once lower down on the right side. In discussing typhoid perforation, he[15] says: "Abdominal pain of a severe character in typhoid fever may be associated with an acute pleurisy."

This abdominal pain due to pleurisy I once saw in a typhoid. Because of its sudden occurrence and because of a sudden jump in the leucocytes my interne had naturally suspected perforation. Yet an absence of rigidity and of local tenderness and the presence of a fine pleural friction, with harsh localized breath sounds, led me to wait, and the autopsy two days later showed no perforation, but a bronchopneumonia.

Fraentzel[16] saw two cases of pleurisy that closely resembled peritonitis.

Cozzolino[17] refers to four cases reported by Massalongo last year in which cases of abdominal pain in children had aroused suspicion of peritonitis, though the trouble was intrathoracic. Cozzolino's own case was in a child of three years with symptoms like those of appendicitis, including tenderness over McBurney's point, though palpation that was *"dolce, lenta, graduale"* showed little

12. Haenpeln: Loc. cit., p. 455. Zulzer: Munch. Med. Wochenschr., 1898, No. 47. Fowler and Godlee: Diseases of the Lung, p. 670.

13. E. G. Janeway: Remarks on Some of the Conditions Simulating Appendicitis and Periappendicular Inflammation. Medical Record, May 26, 1900.

14. Osler: Practice of Medicine, fourth edition, p. 117.

15. Osler: Lancet, Feb. 9, 1901.

16. Fraentzel: Article on Pleurisy. Ziemssen's Encyclopedia, American Translation, iv., p. 63.

17. Cozzolino: Gazzetta degli Ospedali e delle Cliniche, No. 5, 1903.

pain and no induration. Next day pneumonia was plain. Guinon[18] also in his case found that gentle pressure with the flat hand and not the finger revealed less tenderness and less resistance than the previous complaint of the patient, a 13-year-old girl, would indicate.

Morse[19] reports three cases in children, one of which was called appendicitis and another gastritis, though pneumonia was in each case, as the later history showed, the cause of the abdominal symptoms. He says: "Within a few years the abdomen has twice been opened in children by well-known Boston surgeons for appendicitis when the trouble was lobar pneumonia."

Brewer[20] reports an operation for appendicitis in a woman 30 years old, the abdominal pain, more or less general abdominal tenderness, slight muscular rigidity and distention, with leucocytosis, leading to this diagnosis. The abdomen was opened, but no sign of inflammation was anywhere discovered. The examination of the chest a few days later revealed a circumscribed pneumonia of the right lung, though prior to the operation there were no abnormal chest findings. Two weeks later and after the fever had subsided a small abscess immediately beneath the anterior abdominal wall of the left side, was opened. Brewer thinks that the pneumonic focus had induced the early abdominal symptoms.

He cites another case. A man convalescent from an acute lobar pneumonia, after being free from fever for six days, complained of pain in the right iliac region, vomited and developed fever. As he had years before had what was called appendicitis, a recurrence was naturally suspected. Muscular rigidity and tenderness became marked, the temperature rose, tympanites was extreme and the diagnosis of peritonitis was concurred in by Drs. Janeway, Bull and Brewer, who saw the patient with his physician, Dr. Evans. Because of the desperate condition of the patient an operation was regarded as inadvisable. The autopsy showed a normal peritoneum, a resolving pneumonia of the lower lobe of the right lung, a pneumococcus septicemia. How much of the abdominal pain and other symptoms were due to the pneumonic trouble and how much to the septicemia, it is impossible to say. Yet I cite the case here as an instructive one, and as showing the ease with which peritonitis can be simulated by other conditions.

Barnard's six cases in which abdominal symptoms were prominent, though no abdominal disease was present, deserve to be quoted in full, but lack of time will prevent this. Three were cases of pleuropneumonia involving the base of the lung. In two a pyo-pneumothorax developed, in each case apparently from rupture of a tuberculous focus in the apex of the lower lobe. One was a traumatic pleurisy with broken ribs. In this case the pleurisy was plainly recognized, but so definite were the abdominal signs that the abdomen was opened and found entirely normal.

The most interesting of these cases and one which, as Barnard says, was a most perplexing one, concerned a chlorotic girl of seventeen under treatment for ulcer of the stomach. A sudden violent epigastric pain, vomiting, collapse, rapid pulse, temperature 104.5 F., a tender abdomen, especially in the epigastric region, led to an almost immediate operation for perforated gastric ulcer. Nothing of the sort was found. On the second day after admission a right basal pneumonia was clearly made out, later also in the left base. The autopsy showed double basal pneumonia and right diaphragmatic pleurisy and "in the stomach a shallow ulcer of the size of a sixpenny piece, which was not even near perforation. There was no peritonitis." Surely this was a hard case to diagnose. As Barnard says, the sudden rise of temperature should have excited suspicion of somethinng else than perforation.

Hampeln's five cases are also worthy of careful study, he dwelling not only upon the possible misleading character of the referred pain, but upon the vomiting, tympany, collapse, etc., that he explains on the theory of disturbance of the phrenic nerve with secondary disorder of the vagus and splanchnics. Surgical intervention in some of these cases was narrowly escaped, and only because Hampeln's experience had led him to examine with unusual care for thoracic trouble. Hampeln's cases were, to quote his own résumé, "two fatal cases of foudroyant pleurisy with recovery, one fatal and one favorable case of croupous pneumonia, all in the beginning of the illness, creating the impression of a peritonitis or intestinal obstruction, while the ordinary marks of the real disease were absent, and even the physical examination, at least at the beginning, was negative." (loc. cit., p. 450.)

Dr. M. H. Richardson[21] discusses in a very frank manner the possibility of mistaking acute thoracic disease for appendicitis, citing instructive cases. He makes out the error in diagnosis as often due to the fixation of the thought of the observer on the one part of the body or on the one disease. Arguing from a psychologic standpoint, he says:

For a true perception of the normal relation of things to be temporarily suspended, it is only necessary that the mind for the moment be dominated by a fixed idea. Influenced by a single suggestion or by a chain of suggestive circumstances, the mind may become so possessed of a certain idea that the result will necessarily be distorted and incorrect.

How true this is we all know to our sorrow, in more than single instances. I referred to this point in speaking of the child on whom operation was contemplated for appendicitis. The minds of the two physicians had, as Richardson says, become dominated by the fixed idea of appendicitis, though pneumonia was plainly recognized by both as soon as the possibility of its existence was pointed out. Barnard says the opinion that in his case of traumatic pleurisy there were abdominal complications was largely due to the fact that a few weeks before, with a somewhat similar injury and symptoms, there had been rupture of the spleen with hemorrhage. His mind was drawn, therefore, toward the possibility of a duplicate of this somewhat rare occurrence.

CONCLUSION.

There is little to say in conclusion. Cases may occur in which at first it may be impossible to say whether the trouble is abdominal or thoracic. Each case must be judged on its own merits, and the decision as to immediate operation or waiting, not settled by any hard or fast rule. Certainly in some doubtful cases with threatening abdominal symptoms, it would be better to err on the side of operation and make a laparotomy than to let a possible ruptured appendix, gall bladder, stomach or intestine go untreated for six or twelve hours. An exploratory abdominal incision could, perhaps, be made under local anesthesia or under laughing gas. This would avoid the danger of adding bronchitis, or aspiration pneumonia to an already existing pulmonary inflammation, if such happened to be the primary trouble and the peritoneum is found normal. If peritoneal trouble is found ether or chloroform anesthesia can be added and the reparative surgical procedure instituted.

But with care and circumspection doubt will seldom arise. The main safeguard in the diagnosis is to think of the possibility of a thoracic origin for the abdominal

18. Guinon: Revue mensuelle des maladies de l'enfance, xix, p. 167.

19. John Lovett Morse: Annals of Gynecology and Pediatry, Nov. 1899, p. 143.

20. George E. Brewer: Some Errors in Diagnosing Conditions Resembling Appendicitis, Annals of Surgery, May, 1901.

21. Richardson: Remarks on the Diagnosis Between Acute Appendicitis and Acute Intrathoracic Disease, Boston Medical and Surgical Journal, April 17, 1902, cxlvi, No. 16.

symptoms. It will then be generally found that there is some thoracic pain, as well as abdominal, or there will be cough or expiratory grunt, perhaps a bloody or rusty expectoration, or the respiration will be increased out of all proportion to the abdominal pain and tympany, or, as in Barnard's case, the temperature will rise too suddenly and too high for the supposed abdominal accident. These facts, if observed, will lead one to a careful examination of the chest, which will, in most instances, even early, reveal some loss of motion, friction, râle, dullness or bronchial breathing that discloses the existence of an intrathoracic inflammatory condition, and makes it clear that the abdominal pain is a reflected one. The abdomen in these cases is often pseudo-tender. A light touch hurts. Quiet, steady, deep palpation with the flat hand does not increase the pain. And, as Barnard observes, at the beginning of inspiration there is a yielding of the abdominal wall that is seldom seen in true peritonitis. With care, then, most of these cases can be recognized. I need not repeat what I said at the beginning, that this recognition is important. That truth is self-evident.

I may add that in this paper I have made no reference to other reflections of the pain of pleurisy and pneumonia, e. g., to the neck or to the lumbar region. Nor have I thought it wise to extend the scope of the paper so as to include such thoracic diseases as pericarditis, aneurisms, tumors, vertebral tuberculosis, etc. I have purposely limited myself to a consideration of the abdominal symptoms, chiefly pain, in acute pleurisy and pneumonia, believing that this is the form oftenest overlooked or misinterpreted.

DISCUSSION.

DR. J. N. HALL, Denver—There are many points of confusion that I do not think Dr. Herrick has touched. I once saw the daughter of a member of our Association concerning whom two physicians and surgeons were in doubt regarding the presence of appendicitis or pneumonia. It proved to be the former. Confusion existed because there was abdominal distension, the liver was crowded up, and there was dulness below the ninth rib; with the compression of the lung there was no bronchial respiration, but crackling râles. In such a case it is extremely difficult to say what the condition is.

There is another point of confusion: With the displaced liver we may have friction which can not be attributed to lung or liver exclusively. In other words, it is difficult to determine whether we are dealing with peritonitis or pleurisy. In many cases the pain may be due to a diaphragmatic pleuritis. Again, you may have a leucocytosis, but this does not help in the diagnosis, because it may be due to pneumonia or to appendicitis. Last winter, in the wards of our county hospital, a man was admitted with a diagnosis of appendicitis; on account of the urgency of the case I was asked to see him at once. Everything seemed to be fairly characteristic of appendicitis, and I did not wish to say positively that he did not have appendicitis. I did not recommend operation, and the next day he developed a pneumonia in the left lower lobe and everything subsided in the abdomen. I do not attempt to explain how this happened unless there was a combination of lower left pneumonia and appendicitis.

DR. THOMAS MCCRAE, Baltimore—Dr. Herrick has pointed out some pitfalls into which all of us may stumble. I have seen three such cases all admitted to the Johns Hopkins Hospital surgical wards. In a recent one there were marked abdominal symptoms which rather suggested an attack of appendicitis, but the patient had had his appendix removed. The appendix being gone, cholecystitis was suggested. Examination showed a very tender abdomen, the pain increasing with respiratory movements. Examination of the thorax revealed slight dulness at the right base. The next day there was tubular breathing. It is easy to be misled in these cases. The sudden onset of abdominal pain with fever, leucocytosis, and, above all, the marked local signs, all suggest an abdominal condition. Inspection may show diminished respiratory movement on one side, there is tenderness, etc. I agree with Dr. Herrick that a knowledge of the possibilities is our greatest safeguard, and with that a thorough and careful routine examination. The surgeons sometimes suggest that we delay too long before calling them in; but perhaps if they called in the physician oftener they would be saved the mortification of opening the abdomen in pneumonia.

DR. JAMES M. ANDERS, Philadelphia—It has been long currently stated that the pain is usually located in the vicinity of the nipple of the side affected, but this is shown by statistics to occur only in 50 per cent. of the cases; the pain is often referred to the base of the chest on the side affected. I have seen a number of instances in which the pain was referred to the abdomen. In two instances the symptoms closely simulated those of a cholecystitis, especially the local manifestations at the beginning. Later the pneumonic features dominated the scene. As Dr. McCrae has stated, the clinical picture very often simulates these abdominal conditions. I can also recall a case in which the pain was referred to the gall-bladder region and in which the patient died, came to autopsy, and a complicating cholecystitis was actually revealed. The diagnosis had been a right-sided pneumonia. During that patient's life the pneumonic symptoms, as is usual, dominated the clinical picture. I can recall another case, seen recently, in which pain was referred directly to the appendicular region. There was considerable rigidity of the right rectus, the abdomen was somewhat swollen, but there was no distinct tumor mass. A diagnosis of appendicitis had been made by two physicians, and it was thought the case ought to be referred to a surgeon for operation. A careful physical exploration of the chest was made, following the golden rule, "in all cases in which there is fever combined with abdominal pain make a careful physical examination of the thorax." A lobar consolidation was revealed. The abdominal symptoms finally disappeared. I believe we may regard the abdominal symptom as an exceptional occurrence after all in pneumonia. In the experience of some the pain seems to be more commonly referred to the lumbar region. It is to be remembered that cases of pneumonia in which the pain is referred to the lumbar region may occur in patients who previously have had a nephrolithiasis. A man aged 62 had nephrolithiasis on two occasions, and more recently a right-sided pneumonia; the pain was referred to the right lumbo-abdominal region. He had marked rigors and a history of a cough, which led to a careful examination of the lungs and the discovery of a right-sided consolidation. The patient insisted that he was suffering from another attack of renal colic on account of the location of the pain. It is most important practically, as Dr. Herrick has suggested, to investigate the thorax before rendering a diagnosis in cases presenting such symptoms as abdominal pains and fever.

DR. JAMES B. HERRICK, Chicago—The diaphragmatic pleura is frequently involved when we have this pain referred to the abdomen; yet it is not necessarily involved. The case that Dr. Hall refers to, where there was a left lower lobe pneumonia, the pain being referred to the right side of the abdomen, is certainly confusing and is not clear of explanation. It is possible there was a slight pleurisy on the right side which was overlooked. It possibly may be attributed to an anastomosis between the terminal filaments of the intercostal nerves of the two sides. Gerhardt and Huss found, in making dissection, an occasional anastomosis between the intercostal nerves of the two sides and explained the pain on the opposite side from this fact. It is possible that some such explanation might explain Dr. Hall's case. Tenderness on pressure is certainly a confusing feature. Yet, in some cases that I have seen the tenderness has not been exactly that which is found in peritoneal inflammation. If we make gentle steady pressure with the flat of the hand rather than with the finger tips we shall often find that the pain is superficial and not of the kind that is found in peritonitis.

This whole subject is an old one and has been referred to by many writers on pneumonia, but it is frequently overlooked. I did not intend to take a crack at the surgeons, but as Dr. McCrae has opened up this line of thought I may say that in talking on this topic of referred abdominal pain with a couple of surgeons one said he had never heard of such a thing and the other said he did not believe it ever occurred. It was largely because of this conversation that I thought a paper on the subject might be timely and perhaps instructive.

THE PASSING OF CHRONIC RHEUMATISM.*

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In response to the question, "Have you ever suffered from rheumatism?" addressed to the ordinary patient over 40 years of age, the physician seldom gets a negative answer. Even younger patients will tell of having had vague pains in their arms or shoulders, or in their knees or ankles, that they consider to have been rheumatic. Popularly, the notion is that rheumatism is one of the ills to which flesh is almost inevitably heir, and, in the course of time, practically every one is supposed to have some touches of it. It is not too much to say, then, that rheumatism is popularly considered to be practically a universal disease. Physicians encouraged this idea, to a certain extent at least, by suggesting that vague pains are rheumatic in origin, or at least agreeing with patients when they say that probably they have rheumatism.

As a matter of fact, many of the irregular practitioners in recent years, particularly the osteopaths, draw their clientele (and it is by no means innumerous), from the ranks of the so-called chronic rheumatics. Most of the proprietary medicines, besides their other wonder-working effects, are advertised to be good for chronic rheumatism, and especially for that fateful condition, the uric acid diathesis, which is supposed to be provocative of chronic aches and pains of many kinds.

To talk, then, of the passing of chronic rheumatism in the sense of the gradual disappearance of the affection during recent years, would seem to be highly paradoxical. Never, more than at the present time, did patients insist on treatment for the relief of pains and aches supposed to be due to chronic rheumatic conditions of one kind or another. That there are many symptom complexes to which the name rheumatism is commonly applied is beyond doubt. How many of these pathologic processes have anything in their underlying basis of causation to justify the name rheumatism is a very doubtful question.

Chronic rheumatism would supposedly be a condition in which some of the pathologic conditions of acute rheumatism persisted, and in which, as a consequence of this persistence, tissue changes of various kinds took place, causing a deterioration of joint structures. As a matter of fact, however, it will be found that while very many patients confess to chronic rheumatism, comparatively few will admit having suffered from the acutely painful red swollen joint, accompanied by fever causing confinement to bed, which characterizes true acute rheumatism. It is now generally conceded that acute articular rheumatism is a specific infectious disease, and while other specific infections, as, for instance, gonorrhea, influenza or typhoid fever, may produce disorganizing conditions in joints, it is a typical sign of acute rheumatic arthritis to go on to complete recovery. When changes in joints remain after acute rheumatism there is always some suspicion of the possibility of secondary infection, or even a doubt as to the original diagnosis, acute articular rheumatism having been the proper one.

A little examination of the cases commonly called chronic rheumatism shows how many disparate conditions are jumbled together under this term. Vague pains of any kind, for which no direct cause can easily be found, are at once called chronic rheumatism. Many of these conditions can be traced to definite nervous and mechanical conditions without much difficulty if careful examination of each individual case be made. I have already pointed out in previous papers that there are at least fourteen different achy conditions which are often called chronic rheumatism, but without any good reason. The most common form of pseudo-rheumatism is the relaxation of joints which occurs in the ankle and is known as flat-foot, or which follows the dislocations of joints producing tissue conditions which make the patients very sensitive for all their after-life to changes in the weather. Just as there are relaxations at the ankle joint, so there may be relaxations of other joints—the knee, the hip and the shoulder—which are apt to cause something of the muscular discomfort that becomes so prominent a symptom of flat-foot, or the use of dislocated joints in which relaxation has taken place.

A second very common form of vague pain usually attributed to rheumatism, occurs in connection with occupation neuroses. There is not a single occupation in which some movement involving the co-ordination of a number of muscles has to be made and frequently repeated, that may not be the source of pains and spasmodic inability to use muscles properly, such as occurs so commonly in connection with writer's cramp, or telegrapher's spasm. These movements need not necessarily be very complicated in order to have this discomfort develop. The lower limbs may be the subject of these occupation neuroses, as in the cases of men who work foot-power presses, or in those who run sewing machines, or even in nervous individuals who have to sweep much and constantly use the broom from one side supporting the weight on one leg, while the sweeping movement is accomplished with the arm. Filers, carpenters, laundresses who iron much, planers, men who have to use hammer and chisel, all suffer from these neurotic conditions, usually more painful on rainy days, and for this reason so commonly called rheumatism.

A third source of vague pains that may, if not carefully investigated, be attributed to rheumatism is neuritis. In persons who are exposed to the weather and who use one set of muscles much more than others, especially if at the same time there is the absorption into the system of such toxic substances as lead or alcohol, there not infrequently develops a neuritis of the nerve supplying the overworked group of muscles. Stonecutters, for instance, who use their deltoid and other shoulder girdle muscles for the purpose of frequently lifting a heavy hammer or mallet, and whose exposure to the elements leads them to take alcohol often in greater quantities than is good for them, develop a neuritis of that branch of the circumflex nerve which supplies these muscles. At first this makes the muscles much more easily tired than before. During this period other muscles in the neighborhood are asked to do more work than usual in order to make up for the paretic muscles. As a consequence, painful, overfatigued conditions develop. After a while, the neuritis continuing, there is

* Read at the Fifty-fourth Annual Session of the American Medical Association, in the Section on Practice of Medicine, and approved for publication by the Executive Committee: Drs. J. M. Anders, Frank A. Jones and W. S. Thayer.

almost complete loss of power in the deltoid, and then the man can no longer pursue his occupation.

It must be remembered that the branch of the circumflex nerve which supplies the deltoid muscle at the shoulder also sends certain filaments to the joint structures of the shoulder. These filaments are really trophic fibers, and as a consequence the neuritis set up in them causes a lowering of the nutrition of the joint structures. This, together with the forced disuse owing to the inability to use and co-ordinate the muscles of the shoulder girdle, leads to something resembling degenerative changes within the joints. Points of tenderness develop especially over the head of the humerus, and the absence of synovial fluid may lead to crackling and roughness, so that there is some grating or fremitus when passive movements of the joints are made. It is easy to attribute such conditions to chronic rheumatism and to consider the neuritis in the case as rheumatic in origin and perhaps secondary to the joint changes, if the examiner does not follow out the history of the case carefully and examine what was the real beginning of the pathologic condition.

Some of these neuritic cases run a very insidious course, and it may not be clear for some time what the condition actually is. A very characteristic illustrative case of this kind has been recently under observation. The patient was a painter who did inside work, being occupied mainly with the painting of balustrades, doors, window-frames, and picture-moldings, requiring him frequently to occupy awkward positions and use many movements of the wrist in painting small carved portions of woodwork. He came complaining of vague pains in the forearm, and occasionally in the shoulder, which were worse on rainy days. He had been a painter for nearly ten years, and had never suffered from any symptoms of lead poisoning. There was no blue line on his gums. I concluded that it was a simple occupation neurosis, since the tired feelings that he described, and the tendency not to be able to work after a while, and the fact that the use of the brush in his left hand for a time had caused the development of the same condition, to a slight extent at least, in the other arm, were characteristic of such ailments.

One day he came to be treated for a sprained wrist. He had fallen on his right hand, and there was some effusion into the joints of the wrist. Two days later he appeared with a characteristic drop wrist. This had developed during the night, and his observation with regard to other painters rather led him to suspect what the true nature of the condition was. It is not unusual for drop wrist to develop after some injury to the part, just as it is quite a common story to have the first symptoms of toe drop as a result of alcoholic neuritis follow upon a sprain of the ankle. In both cases it is evident that for some time, probably for months, there has been a slow running, low grade and practically latent neuritis. It can easily be understood, however, how the preliminary manifestations of this would be a fatigue of muscles coming on much easier than before the nervous affection began, and a tendency to neurotic conditions such as occur in occupation neuroses because of the difficulty of co-ordinating complex muscle movements when the nerve paths leading to the group of muscles are disturbed by the presence of inflammatory products.

A certain number of cases of so-called chronic rheumatism here in America which present evidences of degeneration in joint structures following acute attacks of arthritis, are undoubtedly not genuinely rheumatic in origin, but are of gouty nature. Gout is much more frequent in this country than has been considered to be the case. Ordinarily gout is considered an English disease, and we look for English heredity in those in whom we suspect its presence. The absence of such heredity is, in many physicians' minds, an argument against an affection being gouty. Ordinarily, it would be considered, I suppose, not too much to say that gout is at least four or five times more frequent in England than it is in America. As a matter of fact, the comparison of the statistics of patients admitted to Johns Hopkins Hospital in Baltimore suffering from gout with those admitted to St. Bartholomew's Hospital in London for the same affection are in the proportion of only three to four. That is, gout is three-fourths as frequent in this country as it is in England. How difficult it is at times to differentiate acute gout from acute rheumatism may be judged from the confessions of excellent clinical observers, including Professor Osler himself, that only after two or three attacks of supposed acute rheumatism have occurred in a series of years in patients under their observation did they find the gouty nodules in the ears or the tophi in the fingers which proved that former attacks had been gout, and not rheumatism.

Gout is, in this country, earned rather than inherited. It occurs especially among those who are subject to the influence of lead and those who indulge too freely in malt liquors. While our beer is much less likely to cause the condition than the heavier malt liquors of England, there is now no doubt that the increased consumption of even light beer which has occurred in recent years in this country have made many more people liable to gouty attacks than before. As to lead poisoning, it must not be forgotten that besides painters and workers in lead factories, plumbers, typesetters, stereotypers and others engaged in the printing trades are likely to suffer from lead poisoning if they are susceptible to plumbum. The accumulation of lead in the tissues always predisposes to gout and leads eventually to changes in joints which may be described as chronic rheumatism if the real nature of the pathologic condition and its true etiology are not recognized by careful elicitation of the history of the case.

In recent years the condition known as rheumatic gout, or rheumatoid arthritis, or, better than any of these names, since it does not assume a knowledge of the etiology of the condition of which we have not yet described well, arthritis deformans, has occupied much more attention. We now know that this condition may occur in three forms. There is the slow running form, which begins usually as Heberden's nodes, and sometimes, though not always, goes on to involve other joints besides the terminal joints of the fingers, and so causes deforming, disabling deformity. The pathologic basis of this is a true productive osteitis of the ends of the bones near the joint surfaces, which seems to be due to the presence of irritants in the blood. It occurs by preference in nervous people. The acute attack of pain and discomfort in the affected joints, which are noted especially at the beginning of the affection, are likely to be more frequent and more annoying whenever the patient is under emotional stress or suffering from worry for any reason.

The second form of rheumatoid arthritis is usually called osteoarthritis and in contradistinction to the first it occurs more commonly in men than in women; it is seen by far most frequently in elderly male subjects. It

consists of a true osteoarthritis usually confined to the hip joint and spoken of by orthopedists not infrequently as senile coxitis. It may occur also in the joints of the spinal column, producing a certain amount of soldering together of the vertebræ and consequent fixation of the back, which gives a very characteristic gait. Like the affection of a single large joint, this spondylitis deformans may be absolutely confined, as its name indicates, to the vertebral column, and is, in fact, usually so confined. This form of the arthritis deformans may occur in younger subjects than the coxitis deformans already referred to.

Neither of the two forms of rheumatoid arthritis described are likely to be taken for rheumatism by a carefully observant practitioner, though very few patients suffering with these affections come under treatment without being convinced that they are suffering from an affection of rheumatic origin. The third form of rheumatoid arthritis, however, has many symptoms in common with rheumatism, and is undoubtedly one of the main reasons why acute rheumatism is thought to produce chronic pathologic conditions in joints oftener than it really does. This third form of arthritis deformans, called by English observers acute rheumatoid arthritis, is described very well by W. Hale White in the last number of Guy's Hospital Report, Vol, 57, 1902.

This third form of arthritis deformans occurs for the most part in women whose age is usually not far from 20. The disease begins, or is at any rate most prominent, in the proximal phalangeal joints, differing in this from the slow-running form of arthritis deformans which in elderly women begins in the distal phalangeal joints. Acute rheumatoid arthritis is usually strikingly seen in the wrists. It is markedly symmetrical, as a rule, in both hands. The swelling is considerable, and extends beyond the affected joints, so that there is a distinct fusiform swelling about the interphalangeal articulations and a general swelling about the wrist and other joints. Sometimes a creaking may be felt, due apparently to thickening of the synovial membranes. In the course of a very few weeks, as a rule, most of the joints in the body are affected, so that the patient becomes bedfast, and is unable to move fingers, thumbs or wrists, and sometimes not the elbows, shoulders nor even any of the joints of the lower extremities. The joints of the spine are often affected, so that turning in bed is difficult and painful, and the temporomaxillary joint is frequently implicated, so that mastication becomes a matter of great discomfort.

Muscular wasting is so very rapid that it is clearly an extreme degree of genuine arthritic atrophy not dependent on disuse. The wasting is usually seen best in the hand and forearm, but in a bad case all the muscles may become distinctly atrophic. The most interesting thing about the disease is the temperature. There is a daily rise toward evening up to 101 F. or 102 F. Exposed parts of the patient are likely to be covered with sweat, and, as can be readily understood, there is strong simulation of acute articular rheumatism. The points of differentiation from articular rheumatism are quite clear, however. The disease begins in the fingers, gradually affects all the other joints, seldom fails to involve the temporomaxillary joint, and very commonly affects the joints of the spine, which are seldom attacked by true acute rheumatism. The disease runs a definite course, the temperature coming to the normal after three to four weeks. Much immobility and some swelling around the joints remain. Most patients have a distinct tendency to relapses during which the joints are once more swollen and tender as before. After the febrile stage is passed swelling of the synovial membranes and the soft tissues around the joints remains and the muscular atrophy causes disability. This condition may not improve much, and the patient may remain a chronic invalid.

It is easy to understand how cases of this kind, which have been described by such excellent observers as Garrod and Bannatyne, as well as Hale White in England, would give the impression of an acute rheumatism running over into chronic rheumatism. This form of arthritis deformans is, however, a disease by itself, usually following some infectious fever, as influenza, parotitis, tonsillitis or the like, and perhaps itself of specific microbic origin.

It is easy to understand, from all that has been said, what little space is left for so-called chronic rheumatism. There would seem to be a few cases of true acute rheumatic arthritis, or of the subacute variety which produce changes in the joint tissues that are persistent and progressive. There is a growing impression that even of these few cases the majority are due not to rheumatism alone, but a mixed infection, the secondary infection being responsible for the persistent pathologic lesions. Certainly cases of true chronic rheumatism, that is of progressive pathologic changes in joint tissues for which no other cause except rheumatism can be found, are very rare. So much so, very probably, as to constitute them a medical curiosity. Personally, I should like very much to see such a case, for I am free to confess that I have not as yet seen one.

Is it possible, then, that chronic rheumatism is to be discussed without even a mention of the uric acid diathesis. Personally, I see no reason for hauling in a diathesis for which we have no substantial proof. Certainly the vague pains that are usually attributed to the uric acid diathesis or to lithemia are, in my experience, due more to a neurotic constitution as a predisposing factor and overwork of particular groups of muscles usually under unfavorable conditions as a direct etiologic agent, than to any other cause.

This, of course, does not deny the existence of any of these achy, painful conditions, which are so common and so frequently demanding treatment. It does not deny that during damp weather, and in people who work or live in damp locations, there will be a distinct tendency to chronic aches and pains, just as there would be to frequent toothache under the same circumstances. It only transfers these affections from the column of chronic rheumatism, where they are all jumbled together, to the manifest opprobrium of our therapeutics, to separate columns, with regard to some of which we know our therapeutic impotency, but with regard to most of which we are fully aware that massage, rest, local treatment and improvement of the constitutional condition will do much to get rid of the symptoms. If the general public and the majority of the medical profession were once persuaded that chronic rheumatism, instead of being a common ailment, is, indeed, very rare, then there would be less failures of diagnosis, with consequent inevitable failures in treatment and less resort to our osteopathic friends, the enemy, and to the many remedies that are supposed to alter the uric acid diathesis and get rid of chronic rheumatic tendencies.

DISCUSSION.

DR. JAMES TYSON, Philadelphia—Dr. Walsh has essayed a difficult subject, difficult as are all subjects characterized by an unknown or at least inexact pathology. There is confusion between gout and chronic or subacute rheumatism. While I

think it is true that gout is a more frequent occurrence in America than has been supposed, I do feel sure that a great many cases are called gout without sufficient reason. I do not think a diagnosis of gout is justified unless there is or has been podagra, or uratic deposits in the joints or evident hereditary tendency. Heberden's nodosities, regarded as gouty by so many, may be gouty, but more frequently perhaps are a product of rheumatoid arthritis. I wish to urge on my fellow practitioners of medicine an attempt at more precise diagnosis of the two conditions. I am sure that in certain cases in my own experience many years have been required to determine whether a case be one of gout or rheumatism.

I should like to say a word also on the threadbare but still undetermined subject of the uric acid diathesis. I sympathize with Dr. Walsh in this respect, and it is mortifying to note how often rheumatic pains are ascribed to the uric acid diathesis without any reason whatever. It is often a careless expression, and not always intended by those who use it, but it gives an impression to the laity which is erroneous. As Dr. Walsh says, we really do not know what the uric acid diathesis is. There is, however, a clinical complex consisting in a scanty secretion of urine, of high specific gravity, with constant and copious deposits of uric acid and urates which is associated with the uric acid diathesis and is evidence of its presence. But it must be a permanent condition. It has doubtless happened to many of us to note in the morning after a liberal dinner including wines a scanty urine with uric acid deposits, etc., which will wear away after liberal ingestion of water, but this temporary state is not the uric acid diathesis. In the conditions referred to even the ingestion of large quantities of water does not increase the amount of urine secreted, and the tendency to sediments continues. To this condition I think we are justified in applying the name "uric acid diathesis." Such cases are not very numerous, and it may happen that associated muscular and joint pains are the result of it, but one ought at least to be sure of the combination before one asserts the causal relation.

Dr. Thomas McCrae, Baltimore—Dr. Walsh has faced a question that the majority of us have faced frequently, and often with the diagnosis of "chronic rheumatism." The profession is largely to blame for the ideas the public have regarding this condition; we inherited the idea and pass it on. Dr. Walsh brought out a good point when he said that if one made a diagnosis of acute articular rheumatism and, after the attack is over, joint changes persist, then consider a wrong diagnosis; if we did that we would find fewer mistakes.

Dr. Alexander Lambert, New York—This helter-skelter diagnosis of rheumatism has been made for a long time, and my confrères in New York should take a more self-respecting attitude toward these painful affections. Often the diagnosis is easily made. It has for a long time struck me that so-called cases of chronic rheumatism with active tissue changes, ulnar deformities, etc., have nothing to do with rheumatism. It is perfectly true, in my opinion, that many cases began like articular rheumatism which can not be differentiated from it, which later prove to be true cases of arthritis deformans. In my experience this is seen most commonly in young women.

Gout is much more common in New York of late years, and it is certainly more often met with in hospital work than formerly. A great many cases that at first seem to be cases of rheumatism and yet which are treated as gout get well, and this is especially so in women where you get so often this irregular type of gout. That type of real chronic rheumatism is, as Dr. Walsh has stated, one that we must disregard. There are cases of rheumatism which begin as acute articular rheumatism, and before the patient recovers from one attack entirely they may have another acute attack and then run on into a subacute condition that one must look on as chronic, a chronic articular rheumatism. This process runs along a long while and leaves the patients more or less crippled. A great number of mistakes come from calling real gout rheumatism, and the ideas that are so prevalent regarding the uric acid diathesis have much to do with it. I am only too glad to be able to add my protest against this asylum for lazy diagnoses. I think it is firmly believed that the uric acid diathesis, occurring in healthy, vigorous, athletic, strong young men, is the cause of nearly all the woes they are heir to, especially the muscular pains. Whatever causes gout causes uric acid, and uric acid is simply one of the many symptoms. These men were usually 20 years old, and no one would accuse them of being gouty or rheumatic; they were in their prime and in vigorous health, and yet, among such, uric acid deposits in the urine are frequently found.

I wish to thank Dr. Walsh for bringing this subject up, because it is only by such papers and by such discussions can we realize that the so-called cases of gonorrheal rheumatism, scarlatinal rheumatism, etc., are not cases of rheumatism at all, but distinct and definite diseases; all cases having pains in the joints should not be always considered as rheumatic, but they should be clearly differentiated. It is only by so doing that we will be able to be honest with ourselves and arrive at an accurate and scientific knowledge of the subject.

Dr. James J. Walsh, New York—When I called my paper "The Passing of Chronic Rheumatism" I did not mean absolutely no cases of chronic rheumatism existed; I did mean to say that cases of chronic rheumatism were more or less curiosities and well worth studying. Chronic rheumatism is generally thought to be very common. If one should run across a case of true chronic rheumatism we would want a report of it in our journals. What is acute rheumatism? We think it is an acute infectious disease. A number of clinicians think the disease runs a course of from two to six weeks and gets better; they give salicylates, not because it is a specific for rheumatism, but because it lessens the pain and lowers the temperature. Again we have certain joint lesions occurring in gonorrhea, scarlet fever, typhoid fever and intestinal troubles that are accompanied by diarrheas, dysentery, etc., all of which may be accompanied by joint lesions and to which the term "rheumatism" is applied. I wish to enter a plea for a better knowledge of this condition.

It gives me pleasure to hear what Dr. Tyson has said regarding the uric acid diathesis; I think the uric acid diathesis has been overdone when we say that it gives rise to so many aches and pains, etc. If one looks into the literature one will find little authority for thinking the uric acid diathesis a prominent factor in disturbances of metabolism. We must remember that nervous people are more subject to pain than others; they may simply have some discomfort and think they really have pain, and such is particularly worse on rainy days. Dampness is associated with it.

DANGERS ATTENDANT ON ATTEMPTS AT GAINING THE INTERVAL IN OPERATIONS FOR APPENDICITIS.*

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It is strange that medical men in general and anatomists and physiologists in particular claim that the appendix vermiformis has no function, that it is a useless appendage, playing the part of catching any old thing, or furnishing the surgeon opportunity to rake in ill-gotten gain. Ridiculous as it is to compare inanimate things to parts of the human body, it may be well to do so here, in order to state that at such a right-angled junction as is formed by the ileocecal connection, an oil cup would be furnished in mechanics, while in hydraulics, as in a sewerage system, for instance, a manhole would be placed. This appendage apparently has secretory functions by which, it is fair to assume, the natural tendency to pastiness of the residue of digestion, after it comes to the cecum, is so modified that it is ren-

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dered less adhesive; the cecum being the receptacle for the effete fecal mass needs, it would appear, lubricating material, and this assumption indicates the necessity therefor, in order that the fecal current and the propulsion of the mass may not become interrupted. Whether this assumption is based on incorrect reasoning, the physiologic chemist ought to be able to demonstrate.

A normally situated appendix free from disease means to its possessor, other things being equally normal, that he shall be freer than others from the one great danger attendant on life from the cradle to the grave—constipation. Understand that no inference is to be deduced from this statement that constipation is the cause of appendicitis; on the contrary, appendicitis or appendiceal irritation, from which one may suffer a great part of his lifetime before sufficiently extensive involvement takes place to make up the condition known as the "attack," is always productive of constipation; mark the distinction as well as the difference. Constipation seldom, if ever, produces appendicitis. Diarrhea may occasionally do so; these conditions usually are but symptoms of the disease; that they are relieved by non-surgical means is not evidence that they were the cause of, nor that it is cured by such relief.

This brings us to the consideration of the many ailments referred to the gastrointestinal tract during infancy and childhood which are often misinterpreted as "gastric difficulties," "cholera infantum," "cholera morbus," "colic," "gastrointestinal," "intestinal" and "nervous dyspepsia," "liver ailments," "constipation," or even "diarrhea"—for a diseased appendix quite as often causes diarrhea as constipation, and sometimes we note these conditions alternating in given cases. Such "ailments," "difficulties" and "disturbances" are nearly if not always, due to a diseased appendix, the disease condition, located in its mucous membrane, having been produced by some infection, the result of impure food-product, or by the exanthemata, influenza; or, catarrhal inflammation due to cold is as likely to affect the mucous membrane of the appendix as mucous membranes elsewhere, even to the extent of slight superficial ulceration thereof, each attack passing through the various stages on to the process of cicatrization, the appendix itself not showing any marked pathologic change at the time of these repeated ulcerative attacks. Eventually the stenosed or strictured conditions following the inflammatory changes show up as cicatricial contractions and these form more or less perfectly retentive diaphragms which interfere accordingly with the complete emptying of the appendix of its secretions, or its attempts at ridding itself of foreign particles that may be accidentally forced into its lumen; an appendix thus crippled during infancy or childhood, while a menace to perfect health and likewise to life, may not until years after the initial disturbance cause highly dangerous or fatal effects. During these years the symptoms may be of the character known as "digestive disturbances," and the patient may have taken numerous forms of quack nostrums.

In making our diagnoses for appendicitis we should have to contend with but three forms of the disease: the pre-inflammatory, the inflammatory, and the post-inflammatory. Further division and subdivision serve but to confuse and bring about an obscure or doubtful diagnosis which in turn serves to bring about delay until the opportune moment is passed. In our examinations let us not look for symptoms alone at the great risk of misinterpreting them; rather let us look for signs, one sign in particular, that of tenderness.

This sign was pointed out to us years ago by Dr. Charles McBurney of New York City, and it is almost infallible in determining the condition of advancing inflammation of the appendix. As you know, its presence is made manifest by pressure being applied at the point that is known to be the normal site of the base of the appendix when it is involved by lymphangitis. McBurney described it as a point of exquisite tenderness, and his friend, Dr. Lewis A. Stimson, also of New York, named it "McBurney's point." A number of years ago I evolved a process of reasoning from my then somewhat limited knowledge of this subject and accordingly wrote an article which was published in the *New York Medical Journal*, April 18, 1891, page 452. At that time I entertained ideas that somewhat deprecated the value of this sign. Greater experience, however, has taught me to regard it most highly. I felt somewhat diffident of having published this article until about a year ago, when I read the statements regarding this point from the pen of the distinguished surgeon, Sir Frederick Treves. In his article he attempts, without success, to belittle the McBurney point as a sign of appendicitis by stating that he found that the location of the appendix in his postmortem work did not correspond with the "point" as noted in the living subject.

The refinement of the diagnostic sign of McBurney, palpation of the appendix, as given to us by Dr. Geo. M. Edebohls of New York, is the open sesame to the dismal cavern of appendicitis, for by this key, that of palpation of the appendix itself, we can trace its entire outline, and also detect the tenderness caused by disease situated within its walls and this during the pre-inflammatory stage. Hence its exceeding great importance, for on recognition of the relative value of these tests of McBurney and Edebohls and their application and prompt action as a result of the knowledge gained thereby, will depend the relative danger of early as compared with late operation.

The symptoms of acute appendicitis are of so definite a character that "he who runs may read" and the physician listening to the history of one suffering from an "attack" ought to be able to make a diagnosis by telephone and that even at long distance. Had one in his enthusiasm during the discussion of this subject at our last meeting made an appeal for a certain great leader of fashion, then the uncrowned King, to set a pace for the world to follow by having his diseased appendix removed, such disease condition having been interpreted from the daily press reports of his "stomach troubles," "intestinal difficulties," "influenza," and last, but by no means least, "lumbago attacks," how such a one would have been laughed at; and yet any experienced American physician or surgeon would have been warranted in interpreting these reports of the case, even at that time as meaning nothing else but appendicitis, thus making a diagnosis even by cable. The primary danger in connection with appendicitis is that the pre-inflammatory stage of the disease is not detected; this being due to the old time nonsensical ideas, among which that of a tumor of perityphlitic origin is uppermost, having been too strongly entrenched in the minds of many medical men. What a multitude of woes, miseries and sufferings could be swept away were we but to recognize in the infant or child its mildly diseased appendix, which in time, if left to the uncertainty of medical treatment, plus dietary juggling, must come to the inevitable state of diffuse inflammation, when still greater danger be-

comes attached to the situation, and this even though we operate at the very earliest hour of this stage of "attack." If we operate late in the attack, let us not forget that the operation may be followed by hernia, "to plague the patient and vex the surgeon," as Joseph D. Bryant has so aptly said.

The greatest danger of all, however, in connection with the diseased appendix is that of the "wait and watch" method of treatment, consisting of no matter what kind one may suggest, from the most heroic to that of the complete "let alone plan," instead of surgical intervention, until hour after hour has flitted away in the vain and forlorn hope that lost opportunity may return, until we find ourselves facing a problem, the outcome of which is most dubious regardless how well calculated may be its attempted solution. No amount of medical treatment or dietary adjustment can ever make amends for the delay that leads us into such a predicament. Every hour so lost regardless of what one's fancy may choose for him in his attempt at regaining this lost opportunity, the more surely adds its own danger, until danger after danger beset the path chosen so recklessly, as he casts aside the opportune moment for surgical treatment of which, if he take advantage, he will be saved embarrassment, to say the least. Another and very grave danger attendant on attempt at gaining what may seem to be the golden opportunity for surgical interference, or operation during "interim," is that the patient finding that he has recovered from his "attack" believes, and is encouraged by his medical attendant in thus believing, that he may have been "cured," so he flatly refuses to have an operation at this time, favorable and all, though it may seem to him. A number of such cases must have come under the observation of every medical man of considerable experience with patients afflicted with the disease. I have had quite a number; many of them are still miserable; some have died from other attacks, no operation having been performed, while a few have not been re-attacked; their time is yet to come. So that, after all due consideration has been given to the dangers attendant on attempt at gaining the "interim" in the operation for appendicitis, it would seem apropos to here cry "physics to the dogs," and that *immediate* surgical intervention should be the shibboleth of every physician and surgeon! To play on the immortal bard's great creation, the Soliloquy of Hamlet, why should not the sufferer from a diseased appendix say: "Doctor, why not rather *bare* the ills I now have than wait for others that you know not of?"

Treves says what is so well known even here in America, that there will die but about five per cent. of those first attacked by appendicitis! What man among us would be satisfied with a loss by death of five, two, one, or even a still smaller percentage? He also makes the statement that out of one thousand operations for appendicitis, during "interim," he has had but two deaths; so far, so good. The mortality need not be as great as one-hundredth of 1 per cent. if immediate operative measures be resorted to, on recognition of the disease during the pre-inflammatory stage. Why should Treves have had a death at all under such favorable conditions as surrounded his thousand cases? But has he told us how many people died during the process of treatment under which they must have gone, and that at the hands of many doctors, most likely, in order that each one of this apparently great number should get to the goal of his, Treves', ambition—the day of "interim"? If there were not accompanying deaths attendant on this doctoring, great was the feat, and we should know of what it consisted. Will any one here, even our friends Ochsner and Mayo, make any such heroic attempts as trying to get together one thousand cases for interval operation in appendicitis, without death attending at least 2 or 3 or even 5 per cent. of the number, and this even during the "first attack"? Ochsner should make himself more clearly understood here in New Orleans than he appears to have done elsewhere. A short time ago I listened to a report of the meeting held in Saratoga. The reporter took great umbrage when, in discussing his so-called "impressions" of the meeting, I made the statement that Ochsner did not pretend to more than attempt to get his patients in better condition for operation, which he performed as soon as it became satisfactory to him. The gentleman and others, his friends, took issue with me, all claiming that Ochsner "cured," note the word "cured," those cases by treatment, operations not being resorted to but occasionally; in fact, they stated that all of the successful cases reported in his discussion of Deaver's, La Place's and Parker Syms' papers at the Section's last meeting were not operated on at all, but were "cured" by his (?), Ochsner's, method of treatment.

In conclusion permit me to say, Mr. Chairman, that here in the South, and elsewhere, New York, Boston and vicinities, physicians in general are progressive and quite up to date in the management of appendicitis, while it is sad to note that in Pennsylvania, even though it be my own state, physicians, not always of the highest standing, however, point the finger of scorn and rail at passing brothers who stick to the surgical maxim, "Operate, and operate early!" So when Deaver says he has different cases from those seen in Chicago it is the truth, for perhaps in no other place on earth can the sodden, painful, phlegmonous mass typified so graphically in Joseph Price's "Green Groin" be as plentifully seen as in the City of Brotherly Love, and this in spite of Deaver's teaching, the following of which would but revert directly to the contrary of all of this.

DISCUSSION.

Dr. H. D. Niles, Salt Lake City—So long as the large mortality from appendicitis comes from waiting for an opportune time to operate, so long as the small mortality comes from operating when we have the infection within the abdomen, so soon as the diagnosis is made, just so long, it seems to me, that we should operate immediately when we make the diagnosis. If we wait, we are waiting for the development of conditions that no man will now claim he can recognize. I do not mean by that that you can not tell the pulse or the temperature, or that you can not mention other symptoms, but no one can tell how dangerous it may be not to operate or how dangerous it may be to operate. No matter how small within the peritoneal wall, there may be that spurious and dangerous infection from the peritoneal cavity. With these uncertainties and with the expectation of occasionally choosing the wrong time, to me it seems best to operate when I know I have the infection, because I am not certain how long I can safely leave it.

Dr. James B. Bullitt, Louisville—One word in regard to the conception of the author's paper. My impression was that the question was whether or not Dr. Ochsner cures his cases with operation or without operation, and, therefore, I yield the floor to Dr. Ochsner.

Dr. A. J. Ochsner, Chicago—Evidently I have had the misfortune of being misunderstood. Since the Saratoga meeting of this Association I have stated my ideas on this particular point with the greatest possible care in the form of conclusions, which have appeared in the *Medical News* so that anyone who may be interested will have an opportunity in the future to see exactly what my position is regarding this subject. The

same thing has been done in a number of publications, but I have in this one considered every point that has come out in any and all of these discussions. These conclusions were formulated as follows:

1. The mortality in appendicitis results from the extension of infection from the appendix to the peritoneum or from metastatic infection from the same source.

2. This extension can be prevented by removing the appendix while the infectious material is still confined to this organ.

3. The distribution or extension of the infection is accomplished by the peristaltic action of the small intestines.

4. It is also accomplished by operation after the infectious material has extended beyond the appendix and before it has become circumscribed.

5. Peristalsis of the small intestine can be inhibited by prohibiting the use of every form of nourishment and cathartics by mouth and by employing gastric lavage in order to remove any substances of food or mucus from the stomach.

6. The patient can safely be nourished during the necessary period of time by means of nutrient enemata. Large enemata should never be given, for they may cause the rupture of an abscess into the peritoneal cavity.

7. In case neither food nor cathartics are given from the beginning of the attack of acute appendicitis and gastric lavage is employed, the mortality is reduced to an extremely low percentage.

8. In cases which have received some form of food and cathartics during the early portion of the attack and are consequently suffering from a beginning diffuse peritonitis when they come under treatment, the mortality will still be less than 4 per cent., if peristalsis is inhibited by the use of gastric lavage and the absolute prohibition of all forms of nourishment and cathartics by mouth.

9. In this manner very dangerous cases of acute appendicitis may be changed into relatively harmless cases of chronic appendicitis.

10. In my personal experience no case of acute appendicitis has died in which absolutely no food of any kind and no cathartics were given by mouth from the beginning of the attack.

11. The mortality following operations for chronic appendicitis is exceedingly low.

12. Were peristalsis inhibited in every case of acute appendicitis by the methods described above, absolute prohibition of food and cathartics by mouth and use of gastric lavage, appendectomy during any portion of the attack could be accomplished with much greater ease to the operator and correspondingly greater safety to the patient.

I would make the following suggestions for the treatment of appendicitis with a view of reducing the mortality:

1. Patients suffering from chronic recurrent appendicitis should be operated on during the interval.

2. Patients suffering from acute appendicitis should be operated on as soon as the diagnosis is made, provided they come under treatment while the infectious material is still confined to the appendix, if a competent surgeon is available.

3. Aside from insuring a low mortality this will prevent all serious complications.

4. In all cases of acute appendicitis without regard to the treatment contemplated the administration of food and cathartics by mouth should be absolutely prohibited and large enemata should never be given.

5. In case of nausea or vomiting or gaseous distention of the abdomen, gastric lavage should be employed.

6. In cases coming under treatment after the infection has extended beyond the tissues of the appendix, especially in the presence of beginning diffuse peritonitis, conclusions four and five should always be employed until the patient's condition makes operative interference safe.

7. In case no operation is performed neither nourishment nor cathartics should be given by mouth until the patient has been free from pain and otherwise normal for at least four days.

8. During the beginning of this treatment not even water should be given by mouth, the thirst being quenched by rinsing the mouth with cold water and by the use of small enemata. Later small sips of very hot water frequently repeated may be given and still later small sips of cold water. There is danger in giving water too freely, and there is great danger in the use of large enemata.

9. All practitioners of medicine and surgery, as well as the general public, should be impressed with the importance of prohibiting the use of cathartics and food by mouth, as well as the use of large enemata, in cases suffering from acute appendicitis.

10. It should be constantly borne in mind that even the slightest amount of liquid food of any kind given by mouth may give rise to dangerous peristalsis.

11. The most convenient form of rectal feeding consists in the use of one ounce of one of the various concentrated liquid predigested foods in the market, dissolved in three ounces of warm normal salt solution introduced slowly through a soft catheter, inserted into the rectum a distance of two to three inches.

12. This form of treatment can not supplant the operative treatment of acute appendicitis, but it can and should be used to reduce the mortality by changing the class of cases in which the mortality is greatest into another class in which the mortality is very small after operation.

In regard to the first point, I wish to say here, as I have said everywhere before, so long as the infection is within the appendix when I make the diagnosis, I operate immediately if I can obtain the consent of the patient. I have stated the reasons why this should be done over and over again.

There is, however, a time that has been described by Dr. Niles, a time which comes to every surgeon, when we can not say with any degree of certainty that the particular patient under consideration will get well if we operate at once. This class of patients, under the best possible conditions, and with the best possible surgeons, will produce a mortality of from 15 to 30 per cent. if they are operated on at once as soon as the diagnosis has been made. I wish to say that with those cases we do not know what will happen if we operate at once. We do know, however, that in 97 per cent. of all such cases suffering from perforative or gangrenous appendicitis the patient will get well, provided we follow out the plan outlined in the above conclusions, namely, that of washing out the stomach, and giving absolutely no cathartics and no food of any kind by mouth and giving no large enemata until the patient has been normal for at least four days. We have counted the leucocytes and have found in all cases in which this treatment was carried out that the abnormal leucocytosis has decreased. We have found that the pain and the tympanitis disappeared regularly and that the patient's condition has improved systematically, and that although there is still a slight mortality, this has been diminished enormously by this form of treatment, not only in my own hands, but also in the hands of a large number of physicians and surgeons who have carefully carried out all of the details of this plan of treatment. Those who have failed have either permitted the use of a little food by mouth or they have neglected to employ gastric lavage or they have given large enemata.

DR. MILES F. PORTER, Fort Wayne, Ind.—We have operated in the beginning of the attack on several hundred cases and we have not lost a single case. We have counted these cases just as they come into the hospital; not only the cases in an operable condition, but those which died right after they entered the hospital. Some cases should be operated on after they recover from that attack, at a safe period of time. Occasionally we have a death, but we have only had 2 deaths this year out of 130 cases. Neither of these cases should have died, but the one died from pneumonia and the other from shock.

DR. WILLIAM J. MAYO, Rochester, Minn.—I think we are all agreed on one point—the point on which Drs. Murphy, Deaver and Ochsner, and so far as I know almost every prominent surgeon in this country has insisted—that if you can get the case within the first forty-eight hours that case

should be operated on, and the sooner you operate the safer the operation will be. The more experience I have the more convinced I am that this is the proper course to pursue. Now, if you have a case that comes to you in which you believe that the inflammation is still confined within the appendix and the patient is still in a reasonably good condition, I do not care whether it is during the first forty-eight hours, or whether it is during the third, fourth or fifth day, I will operate on that case, because I believe that that case is going to get well. We have, at least out in Minnesota, a considerable number of cases brought to the hospital in which this favorable condition has gone by. The patient is tympanitic, vomiting, with quickened pulse, and we realize that no longer by removing the appendix can you get the material out of the system, and if you operate on this case at this time there will be a very considerable mortality. If you take these cases that show this septic condition (and Dr. Lund has shown us how to take care of some of the worst of them) and put them on the plan of treatment recommended by Dr. Oschner, in a few days the majority will get into a condition in which they can safely be operated on with a mortality of 4 per cent. or less; at least this has been our experience.

Dr. J. B. Murphy, Chicago—I feel that I have for the past two years understood Dr. Ochsner's position as he has stated it here to-day. I feel that the majority of practitioners have not properly interpreted his position, and that Dr. Ochsner has been greatly wronged and injured and maligned by many practitioners. I am delighted to find that we are practically a unit as to what should be done in cases of appendicitis. I do not see wherein we differ at all. There are cases, however, which we can not rescue by operation at the time they are brought into the hospital, which we can reach by operation at a later time. These cases are so small in number, however, in comparison with the whole, and the number will become smaller every day so soon as we understand that the profession is a unit, including Dr. Ochsner, that the cases are all better operated on within the first twenty-four or forty-eight hours, and that we ought to make a diagnosis before that time, and a practitioner will be ashamed to come in with a case after that time has elapsed. He can no longer say, "I have given this patient the 'Ochsner treatment,'" when the patient is presented in a moribund condition.

Dr. R. H. Gibbons, Scranton, Pa.—A bright, pretty girl, 16 years of age, a miner's daughter, was "attacked" during the evening of a Thursday of June last. A physician was called and prescribed for her, stating that she had a "bilious attack." On the following Tuesday I visited her in consultation, finding her abdomen enormously distended. It was recommended that she be taken into hospital that attempt might be made to get her in a more favorable condition for operation. I explained to her family the danger attendant on shifting her over the rough roads in one of the crude ambulances with which we are usually furnished throughout the coal regions, so she was not changed. I tried to have her physician appreciate the importance of keeping from her all forms of drugs, and even food or fluids, and to nourish her, if necessary, per rectum. This was an unsuccessful undertaking. At the end of two weeks, when I was again called, I found her condition was worse, if possible, than on the former occasion. I persuaded her family to have her removed at all hazard to a private hospital several miles distant; this was successfully accomplished. A rigid nursing surveillance was established, nothing was given by mouth, rectal alimentation was instituted. As is often noted to be so, when such patients are treated in this way the distension subsided, the peri-inflammatory exudate largely disappeared and the case assumed an altogether more favorable outlook, of which, when at its height, I proposed taking advantage, intending to operate. The already referred to danger attendant on attempt at gaining the interval opportunity now asserted itself. It was in this way: If the patient has done so well thus far why should she not make an entire recovery; in other words, why operate? These were questions that were put, not only by the little girl herself, but by various members of her family and others interested. While she was in this fairly favorable condition Dr. Robert F. Weir of New York City, while here in Scranton in consultation in another important surgical case, saw her with me, and said, as he had said at the meeting of a year ago, "that it was dangerous to postpone operation in any case." I regret exceedingly that I did not insist on operation at this time, for soon thereafter she was taken with symptoms which manifested themselves as those of pyophlebitis, and nothing whatever had the slightest effect on her condition, she finally dying on the forty-first day of her "attack." Dr. John A. Wyeth, who was in town spending a number of days in expectation of possible operation in a critical case of typhoid, also examined this case, but at a time when she was within a few days of her demise, when every organ in her body appeared to be under the influence of the general toxemia.

Special Article.

THE FOURTH OF JULY, 1903, CASUALTY LIST.

A. THE TETANUS MORTALITY.

Before the Fourth of July celebration began, accompanying the desultory explosions that precede it by several weeks, the daily papers throughout the entire country north of Dixie were full of warnings of what was to be expected. The experience of previous years was retold; how many lives had been lost through the accidents of the Fourth, and how many more had succumbed to the tetanus epidemic that follows in its train. There were countless warnings to parents, both of the dangers in the use of toy pistols and the necessity of proper care of the wounds they might produce. Much advice was given in this last respect that was for the most part good. The responsibility of municipal authorities was pointed out. Attention was called to innumerable ordinances controlling the sale of toy pistols to minors and the discharging of firearms in the limits of the municipality. Assertions were made that if existing laws were properly enforced by the police the events of preceding years could be much modified, if not eliminated.

But all to what avail? Already in Pennsylvania a foretaste of the coming calamity had been furnished by a preliminary outbreak of tetanus following a blank cartridge demonstration on Decoration Day. According to the newspaper accounts, more than a score of deaths had resulted from this cause alone, and the papers of Pennsylvania urged vigorous action on the authorities, and warned the people of the dangers the Fourth would bring. And yet Pennsylvania had the worst epidemic of tetanus after the Fourth of any state in the Union. The part played by the lay press in this particular feature of preventive medicine has been noteworthy, and entitled to the highest commendation. That it seems to have been fruitless is none the less credit, for we can not tell what the result might have been otherwise, and we know of much good that has been done through this warning of the press.

Now that the Fourth has passed, we are counting up its cost. With as general warning as could be given, the tetanus epidemic has come with even worse and more widespread violence than usual. Over four hundred families are mourning the agonizing death of some member, while a few, a very few, anemic, emaciated survivors are convalescing from one of the most terrible experiences that disease can bring. The impossibility

of educating the public, and more particularly its officers, to a state of action is too evident. There is no difficulty in educating the public to a point of horror and indignation that such things should be—but the steps necessary to terminate the wrong are not forthcoming.

Nor has the public alone been warned in vain. Hardly a medical journal in the country failed to speak of the same topic at the approach of the Fourth, and to urge the necessity of thorough surgical treatment of blank cartridge wounds, as well as the desirability of prophylactic use of antitoxin. Yet we now hear the same story of the boy who was taken to the family physician or the dispensary soon after being injured. "The doctor dressed the wound," or "tried to pick out the wad," or "washed it with antiseptics," or "thought it but a trivial injury, and said that it would be all right in a few days." And then comes the sequel that "after lockjaw had set in the wound was opened and it was found that pieces of the wad had remained at the bottom of the wound. These were removed, the wound was cauterized, and antitoxin was given. The boy died in great agony the next morning."

There has been an impression that this year's epidemic has been more severe than usual. However, there has been nothing reliable with which to make comparisons, and the impression has been gained chiefly through newspaper reports. Some of the daily papers, notably the *Chicago Tribune,* have made praiseworthy efforts to keep track of the number of deaths reported to them by the press bureaus and otherwise, but such information is obviously incomplete. There also exist various impressions as to the modes of infection with the tetanus bacilli, the sources of the organism and the nature of the wounds that most frequently introduce them. In order to place this subject on a basis permitting its study from the standpoint of preventive medicine THE JOURNAL has attempted to collect all the information possible concerning this year's outbreak. The total number of cases collected far exceeds the number collected by the various daily papers, because we have been able to secure reports from many small communities that never were put on the press wires. Obviously it has been impossible to verify all the reports we have received, and in order that any errors of omission or commission may be corrected we herewith publish a full list of the names of the victims, arranged according to states. Any additions or corrections that may be made by our readers, which may enable revision of these statistics and render them more valuable for future comparison, will be appreciated. While it is possible that in this list there are a few duplications, and a few cases reported as tetanus that were sepsis, or something else, on the other hand, there were undoubtedly many more cases that were not reported, and many cases have been omitted from the tables because the reports were questionable or unsatisfactory, so that the total, great as it is, is undoubtedly below the actual number of cases of tetanus that followed injuries incurred in Fourth of July celebrations. For purposes of comparison, to be made later, a number of deaths from tetanus caused by other than Fourth of July injuries have been included, but they have not been given numbers in the series:

TABLE 1.

	NAME.	Age.	Cause of Wound.	Site of Wound.	Duration.	Result. (x) Is death.
	CALIFORNIA.					
1	Kerr	12	toy pistol	.....	11	x
2	Brown	..	pistol	.....	..	x
	Raffino	..	burn	.....	..	rec.*
	* Not July 4th accident.					
	COLORADO.					
1	Gurley	10	fireworks	.....	..	x
2	Lord	13	toy pistol	.....	..	x
3	Millhouse	11	blank cart.	hand	..	x
4	Fontine	..	blank cart.	arm	..	....
	CONNECTICUT.					
1	Cunningham	14	blank cart.	.....	10	x
2	McGlone	11	blank cart.	hand	12	x
3	Curriesge	7	blank cart.	hand	9	x
	DISTRICT OF COLUMBIA.					
1	Symonds	19	chemical	many	11	x*
	* Explosion of chemicals buried under mound of dirt.					
	IDAHO.					
1	Maupin	..	toy pistol	hand	12	x
	ILLINOIS.					
1	Crosson	15	toy pistol	hand	7	x
2	Jones, Wm.	8	blank cart.	hand	7	x
3	Koncizka	11	toy pistol	hand	7	x
4	Matejcak	11	toy pistol	hand	6	x
5	Stolls	17	nail	hand	6	x*
6	Brown, Michael	..	blank cart.	hand	7	x
7	Dahlberg	12	toy pistol	hand	6	x
8	Beckmann	9	blank cart.	thigh	8	x
9	Emerich	8	toy pistol	hand	8	x
10	Osborn	12	blank cart.	hand	10	x
11	Johnson, A.	11	blank cart.	.....	19	x
12	Rimek	22	blank cart.	hand	8	x
13	Chalowtek	25	fire cracker	hand	9	x
14	Dolan, Thomas	13	blank cart.	hand	10	x
15	Noston	15	blank cart.	hand	9	x
16	Goad	14	toy pistol	hand	10	x
17	Lau, Emil	12	blank cart.	hand	10	x†
18	Watson	9	blank cart.	hand	10	x
19	Warentbee	16	toy pistol	hand	10	x
20	Winke	11	blank cart.	hand	10	x
21	Weddeman	14	fire cracker	hand	10	x
22	Granger	12	toy pistol	hand	..	x
23	Tarbell	6	toy pistol	hand	..	x
24	Olean	10	toy pistol	hand	..	x
25	Easton	10	toy pistol	thigh	10	x
26	Golden, Jeanette	17	blank cart.	.....	13	x
27	Schmetzer	10	toy pistol	.....	8	x
28	Drake	9	blank cart.	leg	14	x
29	Johnson, H.	12	toy pistol	hand	9	x‡
30	Webb	15	blank cart.	hand	9	x
31	Austin	..	toy pistol	hand	..	x
32	Crow	8	toy pistol	.....	..	x
33	Friese	13	toy pistol	hand	9	x
34	Armstrong	..	toy pistol	hand	12	....
35	Hofden	14	blank cart.	hand	7	x
36	Ludwig	..	revolver	hand	..	x
37	Volk	14	toy pistol	hand	19	x
38	Coppenbarger	8	blank cart.	hand	10	x
39	Blaidsdell	9	toy pistol	hand	..	x
40	Henderson	13	blank cart.	.....	..	x
41	Remington	14	blank cart.	hand	10	x
42	Peisker	16	blank cart.	hand	6	x
43	Olson	..	blank cart.	foot	..	....
44	Dicks	15	blank cart.	hand	..	x
45	Naretwinski	12	fire cracker	hand	16	x
46	Stanton	13	blank cart.	hand	..	x
47	Swadley	14	toy pistol	hand	..	....
48	Hogan	10	toy pistol	.....	21	x
49	Suchoyda	..	fire cracker	chest	9	x
	Jahns	6	splinter	foot	11	x
	Balky	..	nail	thumb	13	x
	Ditton	10	nail	foot	..	x
	* Running from cannon fell and nail entered hand. † Exploded between stones. ‡ Shot dirt into hand with toy pistol.					
	INDIANA.					
1	Davisson	11	toy pistol	leg	7	x
2	Winski	11	blank cart.	hand	6	x
3	Newman	12	blank cart.	hand	6	x
4	Dick	15	toy pistol	hand	..	x
5	Hostetler	14	toy pistol	hand	11	x
6	Piper	11	blank cart.	leg	9	x
7	Hiers	12	toy pistol	.....	..	x
8	Allen	..	blank cart.	hand	..	x
9	Kabrich	12	blank cart.	hand	10	x
10	Stephens	11	toy pistol	.....	14	x
11	Fedoras	7	blank cart.	hand	..	x
	Wolf	30	hay fork	.....	..	x
	INDIAN TERRITORY.					
1	Owens	14	blank cart.	hand	8	x
	IOWA.					
1	Anderson, J.	10	toy pistol	hand	..	x
2	Wickman	..	cannon	ankle	10	x*
3	Anderson, G.	12	cannon	.....	10	x
4	Clark	15	toy pistol	hand	..	x
5	Boeson	8	toy pistol	hand	..	x
6	Phelps	9	blank cart.	hand	10	x
7	Rowley, Atlanta	12	toy pistol	hand	7	x

IOWA—*Continued.*

	NAME.	Age.	Cause of Wound.	Site of Wound.	Duration.	Result. (x) is death.
8	Crisman	9	blank cart.	hand	7	x
9	Hiatt	12	blank cart.	hand	9	x
10	Stamy	13	toy pistol	hand	7	x
11	Gettin	14	toy pistol	hand	7	x
12	Lawborn	35	blank cart.	hand	12	x
13	Rowland, Gladys	12	toy pistol	hand	10	x
14	Campbell	14	toy pistol	hand	..	....

* Gas-pipe cannon.

KANSAS.

1	McNish	11	toy pistol	hand	6	x
2	Hammond	11	toy pistol	hand	20	x
3	Mumford	13	toy pistol	hand	13	x
4	Goodseal	11	blank cart.	hand	7	x
5	Bennett	21	blank cart.	.....	..	x
6	Ishman	11	blank cart.	.....	..	x
7	Boyle	8	blank cart.	hand	8	x
8	Forbes	..	blank cart.	hand	11	x
9	Horr	15	toy pistol	.....	11	x
10	Kotwitz	45	fire cracker	hand	16	x
11	Miller	..	toy pistol	.....	..	x

KENTUCKY.

1	Schaffer	13	toy pistol	.....	7	x
2	McNichols	5	blank cart.	hand	7	x
3	Runyon	10	blank cart.	hand	6	x
4	Shearer	11	toy pistol	thigh	16	x

MAINE.

1	Lacourse	35	blank cart.	hand	7	x
2	Russell	12	blank cart.	.....	9	x

MARYLAND.

1	Anderson	12	cannon	.....	21	x
	Rodney	..	machine	.....	10	x

MASSACHUSETTS.

1	Brodeur	9	toy pistol	hand	11	x
2	Babcock	14	blank cart.	hand	11	x
3	O'Connell	11	blank cart.	hand	10	x
4	Milbier	7	blank cart.	hand	7	x
5	Foster	11	blank cart.	hand	7	x
6	Landry	15	blank cart.	hand	10	x
7	Becker	10	blank cart.	hand	11	....
8	Pallette	12	blank cart.	hand	8	x
9	Honiper	10	blank cart.	hand	..	....
10	Burden	10	blank cart.	.....	9	x
11	Thomson	9	blank cart.	hand	8	x
12	Ward	10	.....	.....	8	x
13	Powers	15	blank cart.	hand	12	x
14	Bridgewater	34	fireworks	leg	7	x*
15	Lajeunesse	14	blank cart.	hand	8	x
16	Farson	12	toy pistol	hand	8	x

* Died in New York.

MICHIGAN.

1	Daniels	9	blank cart.	hand	5	x
2	Baker	14	blank cart.	leg	..	x
3	Danielson	9	toy pistol	leg	7	x
4	Burke	12	toy pistol	hand	..	x
5	Hathaway	17	toy pistol	.....	9	x
6	De Young	12	blank cart.	.....	9	x
7	Pierson	15	blank cart.	thigh	19	x
8	Salm	10	toy pistol	hand	16	x
9	Hinline	..	blank cart.	hand	7	x
10	Snow	8	toy pistol	hand	8	x
11	Price	13	.....	.....	..	x
12	Ogusharetz	12	toy pistol	hand	8	x
13	May	14	toy pistol	hand	9	x
14	Randall	9	blank cart.	hand	..	x
15	Miller	11	toy pistol	.....	..	x
16	Traynor	8	.....	.....	..	x
17	Mortenson	19	toy pistol	hand	18	x
18	Vandervelt	14	toy pistol	hand	6	x
19	Gray	19	blank cart.	hand	10	x
20	Hunt	15	toy pistol	.....	8	x
21	Love	6	.....	hand	9	x
22	Finch	18	toy pistol	hand	8	x
23	Stambaugh	12	blank cart.	hand	9	x
24	Webster, Jennie	6	toy pistol	hand	10	x
25	Marshall	10	blank cart.	.....	10	x
26	Parrish	12	blank cart.	hand	11	x
27	Tiaskorpl	30	fire cracker	hand	10	x
28	Clark	..	.....	hand	..	*
29	Norris	..	blank cart.	hand	..	x

* Recovering.

MINNESOTA.

1	Wahlquist	50	blank cart.	finger	9	x
2	Zimmerman	11	file	hand	14	x*
3	Jensen	13	blank cart.	hand	12	x
4	Richards	13	blank cart.	hand	14	x
5	Fullerton	10	blank cart.	hand	6	x
6	Smith	14	blank cart.	hand	9	x
7	Lorenz	12	blank cart.	hand	7	x
8	Graham	11	blank cart.	hand	..	x
9	Fohrman	11	blank cart.	hand	6	x
10	Spearin	9	blank cart.	hand	14	x
11	Roberts	16	.....	.....	12	x
12	Thomas	12	blank cart.	hand	..	....
13	Bassett	9	blank cart.	hand	9	x
14	Soderland	17	blank cart.	.....	..	x
15	Russell	12	blank cart.	.....	..	rec.
	McDermott	4	wagon	foot	..	x

* Using file to enlarge bore of toy pistol.

MISSOURI.

1	Pemberton	7	toy pistol	hand	..	x
2	Smith	14	blank cart.	hand	8	x

MISSOURI—*Continued.*

	NAME.	Age.	Cause of Wound.	Site of Wound.	Duration.	Result. (x) is death.
3	Lease	15	blank cart.	hand	12	x
4	Brennan	18	blank cart.	leg	8	x
5	Zunnstein	8	blank cart.	hand	8	x
6	Hudgens	..	.....	.....	..	x
7	Decker	..	.....	.....	..	x
8	Smith, William	9	blank cart.	hand	8	x
9	Deval	..	.....	.....	..	x
10	Mengerson	..	.....	.....	..	x
11	Roes	14	blank cart.	hand	..	x
12	Harris	..	.....	.....	..	x
13	Bottum	7	blank cart.	hand	..	rec.*
14	Finkelstein	12	blank cart.	hand	12	x
15	Gage	15	blank cart.	hand	..	x
16	Pomeroy	15	blank cart.	hand	11	x
17	Morrison	..	blank cart.	hand	8	x
18	Austin	10	blank cart.	.....	9	x
19	Bennett	22	blank cart.	hand	6	x
20	Ishmal	..	blank cart.	hand	..	....
21	Griswell	12	toy pistol	hand	..	x
22	Burns	12	blank cart.	hand	..	x
23	Magnuson	21	blank cart.	hand	19	x
24	Bland	10	blank cart.	hand	13	x
25	Bonaparte	11	toy pistol	hand	..	....
26	Weiss	..	blank cart.	hand	21	x
27	Williams	24	blank cart.	neck	..	....
28	Helbing	19	blank cart.	hand	..	rec.†
29	Butler	..	.....	.....	..	x

* Large quantities of antitoxin. † Incubation 17 days.

MONTANA.

1	Thompson	..	blank cart.	hand	10	x
2	Passenberger	12	blank cart.	hand	11	x

NEBRASKA.

1	Harris	12	.....	.....	..	x
2	Hill	..	blank cart.	hand	7	x
3	Harms	13	toy pistol	.....	..	x
4	Carey	11	toy pistol	hand	9	x

NEW HAMPSHIRE.

1	Dufraine	11	.....	.....	6	x
2	Dobson	13	blank cart.	hand	8	x

NEW JERSEY.

1	Van Ness, Mrs.	32	fire cracker	hand	8	x
2	Case	12	fire cracker	hand	8	x
3	Pawaro	12	blank cart.	hand	11	x
4	Hanson	12	blank cart.	hand	6	x
5	Hughes	15	blank cart.	.....	13	x
6	Reed	18	blank cart.	hand	8	x
7	Huber	12	blank cart.	hand	..	....
8	McClure	12	blank cart.	hand	..	x

NEW YORK.

1	Maloney	21	.....	hand	7	x
2	Anderson, J. C.	..	.....	hand	..	x
3	Gypson	12	blank cart.	hand	7	x
4	Graham	5	blank cart.	hand	10	x
5	McGill	14	blank cart.	hand	..	x
6	Monaco	14	blank cart.	.....	9	x
7	Horton	23	fire cracker	hand	24	x
8	White, Carrie	17	toy pistol	hand	..	rec.*
9	Bygden	18	toy pistol	hand	..	rec.*
10	Lawrence, J.	10	toy pistol	hand	7	x
11	Kaman	9	toy pistol	hand	7	x
12	Wolfe	9	.....	.....	..	x
13	Sweitzer, Mrs.	..	blank cart.	hand	..	x
14	Young	..	toy pistol	hand	..	x
15	Ward	..	blank cart.	hand	10	x
16	Signor	10	blank cart.	hand	8	x
17	Marks	10	blank cart.	hand	8	x
18	Englehart	14	blank cart.	leg	8	x
19	Dunn	..	blank cart.	hand	7	x
20	Chadwick	8	toy pistol	.....	..	x
21	Fitzgerald	9	toy pistol	abdom.	9	x
22	Bishop	13	toy pistol	.....	9	x
23	Abbott	37	toy pistol	hand	11	x
24	Jacobson	4	toy pistol	thigh	10	x
25	Packingham	24	blank cart.	hand	19	x
26	Messler	8	blank cart.	hand	16	x
27	Ryan	..	toy pistol	hand	..	....
28	Blauvelt	10	toy pistol	hand	7	x
29	Norman	12	cannon	hand	..	x
30	White, James	9	blank cart.	hand	..	x
31	Stark	24	fire cracker	hand	13	x
32	Howcroft	12	toy pistol	hand	18	x
33	Forsythe	16	blank cart.	hand	17	x
34	Van Dyk	18	blank cart.	hand	20	x
35	Rhodes	9	blank cart.	hand	..	....
36	Smith, Milton	..	.....	.....	..	rec.
	Watson, William	12	fall	arm	..	x†

* Antitoxin, intraspinal. † Compound fracture.

OHIO.

1	Detlefsen	16	toy pistol	hand	..	x
2	Simmons	14	toy pistol	hand	19	x
3	Newton	..	.....	.....	..	x
4	Drouth	11	blank cart.	hand	8	x
5	Poole	12	blank cart.	hand	10	x
6	Beans	13	toy pistol	hand	..	x
7	Fostmyer	50	blank cart.	hand	9	x
8	Myers	15	toy pistol	.....	13	x
9	Willows	6	toy pistol	hand	11	x
10	Bewley	16	blank cart.	hand	11	x
11	McCrum	17	blank cart.	hand	11	x
12	Ward	13	blank cart.	hand	12	x
13	Ramsey	14	toy pistol	hand	5	x

OHIO—*Continued.*

	Name.	Age.	Cause of Wound.	Site of Wound.	Duration.	Result. (x) is death.
14	Bemis	12	blank cart.	hand	7	x
15	Howard	15	blank cart.	hand	7	x
16	Montgomery	..	blank cart.	hand	..	....
17	Ragan	..	blank cart.	hand	..	x
18	Tedesco	..	blank cart.	hand	..	x
19	O'Keefe, James	45	blank cart.	hand	21	x
20	Scharnhorst	13	blank cart.	hand	..	x
21	Bassenbach	20	blank cart.	hand	..	x
22	Montkofski	13	toy pistol	hand	20	....
23	Hines	9	toy pistol	hand	..	x
24	Garrity	12	toy pistol	hand	..	x
25	Walker	7	toy pistol	hand	11	x
26	Packingback	..	toy pistol	hand	..	x
27	King	14	dyn. cane	foot	..	x
28	Duguid	10	blank cart.	hand	..	x
29	Raitz	9	blank cart.	hand	10	x
30	Brighmeyer	13	toy pistol	leg	7	x
31	Grenier	17	powder ex.	hand	7	x*
32	Dodeska	9	blank cart.	.....	..	x
33	Grodack, Minna	18	blank cart.	hand	..	x
34	Scoville	8	blank cart.	groin	..	x
35	Raitz	9	toy pistol	hand	10	x
36	Ringle	8	blank cart.	hand	..	x
37	Krautter	12	blank cart.	hand	7	x
38	Grdina	6	toy pistol	hand	..	x
39	Wright	20	blank cart.	hand	11	x
40	Sherman	10	toy pistol	.....	..	x
41	Bentley	10	toy pistol	hand	8	x
42	Burdeen	9	toy pistol	abdom.	..	x
43	Gozdamozitz	25	toy pistol	.....	..	x
44	Hoffman	12	toy pistol	hand	7	x
45	Young	15	toy pistol	.....	6	x
46	Richardson	14	toy pistol	hand	..	x
47	Wilson, William	..	toy pistol	.....	..	x
48	Pifer, William	10	toy pistol	hand	..	x
49	Moore	12	toy pistol	hand	..	x
50	Arnold	..	toy pistol	hand	8	x
51	Lucksinger	14	toy pistol	hand	..	x
52	Bennett	22	blank cart.	hand	6	x
53	Kelley	7	toy pistol	hand	12	....
54	Churchword	..	blank cart.	hand	..	x
55	Weirer, E.	8	blank cart.	back	..	x
56	Litowski	12	toy pistol	.....	14	x
57	Stasko	14	toy pistol	.....	18	x
58	Mathers	34	blank cart.	hand	..	x
59	Frank, B.	13	blank cart.	hand	..	x
60	Keller, A.	11	.....	hand	..	x
61	Butzkowski	11	toy pistol	.....	..	x
62	Wheeler	10	blank cart.	chest	..	x
63	Kiger, H.	17	blank cart.	hand	..	rec.
64	Steiner, Edward	12	bullet	thigh	16	x†
65	Servison	..	toy pistol	.....	23	x
66	Heckinger	..	toy pistol	.....	..	....
67	Brown, D.	..	toy pistol	hand	..	x
	Kassenbrock	7	stick	neck	9	x
	Thomas	40	nail	foot	30	x
	Hollingsworth	..	fracture	leg	..	....
	Beckerton	22	nail	foot	..	....

* Pieces of broken glass entered hand. † Fractured femur with bullet.

OREGON.

1	Wert, C.	13	toy pistol	hand	11	x
2	Struble	14	toy pistol	hand	11	x

PENNSYLVANIA.

1	Pollack	40	toy pistol	hand	5	x
2	Karmel	10	toy pistol	hand	8	x
3	Banks	6	toy pistol	hand	8	x
4	Beam	10	blank cart.	hand	5	x
5	Lafield	12	.....	hand	6	x
6	Monroe	12	shotgun	leg	6	x
7	Johnson, James	13	toy pistol	hand	6	x
8	Breist	7	toy pistol	.....	23	x
9	McHugh	7	toy pistol	hand	14	x
10	Kenny	9	toy pistol	hand	..	rec.
11	Nettle	12	blank cart.	hand	14	x
12	Seeben	9	toy pistol	hand	..	x
13	Hally	8	toy pistol	hand	..	x
14	Hoffmeister	6	blank cart.	hand	6	x
15	Fois	16	toy pistol	.....	..	x
16	Comstock	10	toy pistol	.....	..	x
17	Claridge	15	toy pistol	leg	9	x
18	Habel	12	toy pistol	.....	..	x
19	Ward	19	blank cart.	hand	10	x
20	Innes	10	toy pistol	hand	9	x
21	Kopeckic	6	fire cracker	.....	9	x
22	Brader, Jessie	19	blank cart.	hand	20	x
23	Zeidner	23	blank cart.	hand	9	x
24	White	15	toy pistol	hand	9	x
25	Huber	11	blank cart.	hand	9	x
26	McGuire	10	toy pistol	hand	9	x
27	Ragland	13	blank cart.	hand	8	x
28	Piscioni	18	fire cracker	hand	8	x
29	Wissler	16	blank cart.	hand	8	x
30	Zimmerman	12	toy pistol	hand	8	x
31	Arnold	8	toy pistol	.....	8	x
32	Lee, John	10	blank cart.	.....	8	x
33	Melley	13	toy pistol	hand	8	x
34	Lamb	12	blank cart.	hand	9	x
35	Roe, David	19	blank cart.	hand	10	x
36	Reinhart	15	.....	.....	11	x
37	Harman, Ira	13	toy pistol	hand	11	x
38	Boasler, Agnes	25	blank cart.	breast	9	x
39	Nelson	6	toy pistol	hand	9	x
40	Carlin	13	toy pistol	hand	..	x
41	Caffrey	14	toy pistol	hand	10	x
42	Snow, Roy	14	toy pistol	hand	9	x
43	Thomas, Lot	17	toy pistol	hand	..	x
44	Steventon	11	toy pistol	hand	8	x

PENNSYLVANIA—*Continued.*

	Name.	Age.	Cause of Wound.	Site of Wound	Duration.	Result. (x) is death.
45	Revels	12	blank cart.	hand	7	x
46	Bickerstaff, Ida	26	blank cart.	hand	9	x
47	Corwin, Frank	14	toy pistol	hand	..	x
48	Roe, Wilmer	12	toy pistol	hand	..	x
49	Lavell, Michael	12	blank cart.	hand	..	x
50	Kubelcicz	7	.....	hand	8	x
51	Reilly, Thomas	15	fire cracker	hand	11	x
52	Dymond	..	blank cart.	hand	7	x
53	Whiting	15	blank cart.	hand	6	x
54	Gorman	12	blank cart.	hand	13	x
55	Creely	12	toy pistol	.....	14	x
56	Kiefer	..	toy pistol	.....	..	....
57	Wehrman	10	toy pistol	hand	26	x
58	Costello	10	blank cart.	hand	8	x
59	Cohn, Joseph	9	toy pistol	hand	5	x
60	Loughry	9	fire cracker	hand	4	x
61	Rust	13	blank cart.	hand	14	x
62	McCoy	12	toy pistol	hand	13	x
63	Specock	37	toy pistol	hand	20	....
64	Rankin	33	toy pistol	hand	8	x
65	Johnson, Leroy	12	blank cart.	thigh	..	....
66	Hazel	10	toy pistol	hand	..	....
67	McConn	..	toy pistol	hand	..	x
68	Tuskas	12	toy pistol	mouth	..	x
69	Ricca	13	toy pistol	hand	..	x
70	Butler	10	toy pistol	hand	..	x
71	Nagle	14	blank cart.	hand	..	x
72	Longwell	11	blank cart.	.....	10	x
73	Cox	10	blank cart.	hand	..	x
74	Briglia	14	blank cart.	hand	..	x
75	Gosnell	14	toy pistol	.....	..	x
76	McHugh	7	toy pistol	hand	21	x
77	Carrington, Viola	16	toy pistol	hand	20	x
78	Loucks	12	blank cart.	hand	..	rec.
79	Cohen, Harry	8	toy pistol	.....	12	x
80	Carney	10	toy pistol	head	..	....
81	Bittenbender	8	toy pistol	hand	26	x
82	Fauzy	7	blank cart.	hand	21	x
	Weeks	..	machine	.....	30	x*
	Knittel	..	machine	hand	..	x†
	Prosser	14	bruise	finger	..	....
	Smith, Jacob	50	nail	foot	..	x

* Planing mill. † Paper mill.

RHODE ISLAND.

1	Corozza	..	toy pistol	hand	13	x
2	Hansen	..	toy pistol	.....	..	x
3	Pierce	15	cannon	hand	..	....

VERMONT.

1	Limoge	13	blank cart.	hand	8	x
2	Morris	..	blank cart.	hand	9	x
3	Bini	21	blank cart.	hand	16	x

WASHINGTON.

1	Ennis	12	fire cracker	hand	..	x
2	.....	..	toy pistol	hand	..	x*

* Case at Everett.

WEST VIRGINIA.

1	Hayes	18	blank cart.	hand	6	x
2	Kearns	..	blank cart.	thigh	10	x
3	Griffith	..	blank cart.	hand	..	x

WISCONSIN.

1	Brown	9	blank cart.	.....	11	x
2	McGuire	10	blank cart.	hand	8	x
3	Stendler	11	.....	.....	10	x
4	Hinca	12	fire cracker	hand	..	x
5	Sebruck	15	blank cart.	leg	9	x
6	Neahls	11	blank cart.	hand	9	x
7	Fedoras	7	blank cart.	hand	..	x
8	Howard	16	blank cart.	hand	16	x
9	Weslerski	9	toy pistol	hand	..	x
10	Boucha	13	fire cracker	hand	19	x

In this table have been inserted such data as were obtained from the case reports. Those that were not given, or on which there were conflicting statements, have been omitted. The cause of injury is stated as it was reported, but whether the cause is given as toy pistol, pistol, or blank cartridge, it indicates in each case a wound produced by a blank cartridge. Under the heading of duration the figures indicate approximately the number of days elapsing between the receipt of the wound and the death of the patient, for the information obtained often did not give distinctly the number of days of incubation elapsing before the onset of symptoms. In the columns of results, × indicates a fatal outcome.

Distribution.—It will be noted that the Southern states are quite free from deaths of this sort, due to the fact that the blank cartridge celebration of Independence Day is not the custom in the South. A few such

cases follow the Christmas celebration, but as the noise of this celebration is mostly obtained through other means, tetanus is not common. In the Northern states the number varies somewhat according to the population of the states, but by no means strictly so, as will be seen from this table:

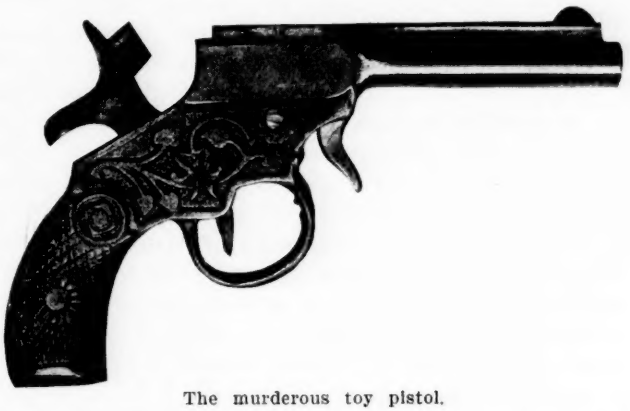
TABLE 2.

Pennsylvania	82	Connecticut	3
Ohio	67	Rhode Island	3
Illinois	49	Vermont	3
New York	36	West Virginia	3
Missouri	29	California	2
Michigan	29	New Hampshire	2
Massachusetts	16	Maine	2
Minnesota	15	Montana	2
Iowa	14	Oregon	2
Indiana	11	Washington	2
Kansas	11	District of Columbia	1
Wisconsin	10	Maryland	1
New Jersey	8	Indian Territory	1
Colorado	4	Idaho	1
Kentucky	4		
Nebraska	4	Total	415

New York had less than half as many deaths as Pennsylvania, and but little more than half as many as Ohio. Massachusetts also is below the number that might be expected from its population. Ohio shares with Pennsylvania a greatly excessive death rate. Otherwise the number of cases bears a fair relation to the population of the states. There are but a few Northern states from which there have been no deaths reported, namely, Wyoming, Utah, North and South Dakota, and Nevada, the small population of each of these states probably explaining the escape. The great number of cases in Pennsylvania and Ohio amounts almost to an epidemic, and no satisfactory explanation seems to have been given.

Age.—The age of the victims is, of course, low, for, with but few exceptions, they were small boys playing with toy pistols. There were a few girls, indicated in the table by the use of the full name, who attempted to emulate the boys, and suffered the penalty. A few adults also were included; they received their wounds in various ways, some, like the boys, through trying to use blank cartridges, some from other sorts of explosions.

Nature of the Wound.—The overwhelming frequency of the blank cartridge wound as the source of tetanus is evident from the tables. Of the cases in which information on this point was obtained there were 358 blank cartridge or toy pistol wounds, and but 29 said to be from other causes. In not a few instances, furthermore, in which the original report gave the cause as firecracker or some cause other than blank cartridge, subsequent information showed that after all the blank cartridge was the real offender, so it is possible that the proportion of cases produced by blank cartridges is even greater than these figures indicate. Reports of injuries by toy pistols have been accepted as indicating wounds produced by blank cartridges, for the reason that all the toy pistol injuries that have been followed up have turned out to be due to blank cartridges. The term "toy pistol" has an indefinite meaning, for it includes both the little affairs used for exploding flat paper caps as well as pistols manufactured for the use of 22-caliber cartridges. As a result many people have come to believe that the paper cap pistol is the offending weapon, which is incorrect. So far as it has been possible to learn, this sort of explosive does not produce any injuries sufficient to cause tetanus. Of the entire series of this year there seems to have been none attributed to paper caps. The toy pistol that most frequently causes tetanus is the flimsy, single-barrelled device, built to fire 22-caliber blank cartridges. It is of extremely cheap construction, selling for 10 to 25 cents generally. Very few cases are due to bursting of the weapon, as seems to be thought by some, but most of them are entirely due to the carelessness of the users, who get their hands in front of the muzzle at the time of the explosion. This accident is favored by the shortness of the barrel, the manner of loading, and the frequence with which the pistol gets out of order through fouling or poor construction. Many of the accidents occur when the pistol is held in both hands in trying to overcome some defect in the mechanism. Many accidents, however, were produced by the better grade weapons, both 22-caliber revolvers, and even by larger caliber weapons. The added complication furnished by the revolving mechanism gives many opportunities for accidents, but their greater expense keeps them out of the hands of small boys to a considerable extent. Of the remaining cases not caused by blank cartridges by far the greater part (17) were due to the explosion of fire crackers, usually giant crackers that lacerated the hands



The murderous toy pistol.

severely. There were also a few from cannons (5), and from burns with fireworks. This subject will be considered further in discussing the etiology of Fourth of July tetanus.

Location of the Wounds.—That nearly as large a proportion of wounds occurred on the hands as were caused by blank cartridges is to be explained as effect and cause. Most frequently, as before mentioned, one hand was placed in front of the muzzle accidentally, and received the wad oftenest in the palm of the left hand. The left forefinger and thumb were next most frequently injured. Not a few boys, however, deliberately placed the muzzle of the pistol against the hand and fired it, supposing that since it contained no bullet it would do no harm. Other boys were shot by their playmates in struggles to obtain possession of the plaything, or in attempting to frighten one another. The greater frequency of tetanus in wounds of the hands is probably not due to a greater danger in such wounds, but to their more common occurrence. Tetanus is as frequent after wounds in other parts of the body as we should expect it to be if occurring in proper ratio to the frequency of location of wounds of these parts, but no figures can be obtained on this point. Tetanus has followed wounds

of the leg, thigh, breast, abdominal wall and even of the mouth.

Duration.—The duration of the disease and its period of incubation in Fourth of July tetanus is very short. We are accustomed to consider, on good grounds, the ninth day of incubation as the turning point in estimating prognosis in traumatic tetanus. Cases with a shorter duration than that seldom recover, whereas, the more prolonged the onset is after the ninth day the better the outlook. By far the majority of the boys with Fourth of July tetanus have not only completed the incubation before that time, but have also completed the disease, and are dead. An incubation of but four or five days, with a duration of the disease of 24 to 72 hours is frequent. We are compelled to believe that incubation is shorter in small boys than in adults, for there seems to be in a rough way such a condition indicated by the figures for this epidemic. Presumably, the tetanus bacillus grows as rapidly in a child as in an adult, and, as it requires less of its toxin to saturate the nervous system of the child, the disease and the termination come sooner. But in any event it is evident that Fourth of July tetanus is of an extremely virulent type, with a short period of incubation and a brief duration. Its virulence is still more fully attested by the results, for recovery is remarkably seldom, so far as it has been possible to learn. In the table cases have been indicated as recovering only when definite information to this effect has been received. A number of cases that were reported as recovering, and also some the outcome of which was never reported, have been left blank. Only 7 have been definitely reported as entirely recovered. Undoubtedly there have been other recoveries, for cases that get well are not so certain to get into these statistics as those that die, but at the best it seems probable that the mortality is more likely to be above 95 per cent. than below it; certainly it is higher than 90 per cent. Whether this extremely high death rate is due to a slight resistance in children, or to a particularly virulent type of infection can not be estimated at this time, but probably both factors exist. Antitoxin was used freely, in several cases intracranially, but in general with little effect. The cases that did recover nearly all had antitoxin, but so many more had it without effect that we believe that it was, as a rule, of little assistance because administered so late in the disease. The chief exception is furnished by two patients of Luckett at the Harlem Hospital, New York, that recovered after the use of intraspinal injections of antitoxin. Luckett lays emphasis on the drainage of as much as possible of the toxic cerebrospinal fluid before injecting the antitoxin.

THE CAUSE OF FOURTH OF JULY TETANUS.

The reason for the existence of Fourth of July tetanus, as we may class these particular cases, is by no means settled, although its determination might seem easy. The question seems to have sifted down to the proposition that the bacilli either are or are not present in blank cartridges. If the former is true it is a simple proposition. But if they are not in the blank cartridges, there are several explanations for the frequency with which the wounds they produce are followed by tetanus to be considered.

The following facts speak in favor of the presence of the infectious agent in the blank cartridge: 1. The remarkable frequence of tetanus from blank cartridge wounds compared with its occurrence after other forms of injury. This has become apparent to everyone. None of the other Fourth of July injuries compares with it, and, although it is impossible to learn in how large a proportion of blank cartridge wounds lockjaw results, yet the impression is obtained that the famous rusty nail wound is far less often the cause of tetanus in proportion to its occurrence. 2. While the opponents of the view of the infectious nature of the blank cartridge consider the dirty hands of the wounded child the source of the organism, yet wounds of other parts are often the site of lockjaw. In the cases in this year's epidemic there are several of wounds of the leg and thigh, a few of the abdomen, one of the female breast, and one of the mouth, in all of which the conditions are quite different from those in the case of wounds of dirty hands. 3. The bacteriologist of the Board of Health of Newark, N. J., has presented the following report:

NEWARK, N. J., July 2, 1903.

To the Honorable Board of Health, Newark, N. J.:

Your attention is respectfully invited to the fact that bacteriologic examination of samples of two different makes of blank cartridges has been made at the Bacteriological Laboratory during the past week with the result that among other germs present in the contents of the shells the bacilli of tetanus were found in large numbers.

The tetanus bacilli found are so typical in shape and the odor so characteristic that there is very little doubt of their identity.

The samples examined were purchased in the open market and the cartridges selected promiscuously from the contents of the boxes.

The frequency with which lockjaw follows accidental wounds received by the explosion of blank cartridges may possibly be explained by the presence of these germs in the materials used in the manufacture of the cartridges.

Further examinations will be made to determine if the tetanus bacilli are constantly present, and also to find whether the germs are in the explosive or in the paper wads used.

R. N. CONNOLLY, M.D., *Bacteriologist.*

If this report should be substantiated, as we shall further note, it stands alone in opposition to many other investigations. So far, we are informed, no inoculation experiments have been made, and organisms producing gas, and morphologically similar to the tetanus bacilli, have been described by Wells in blank cartridges, but they were non-pathogenic.

4. Several possible sources for the bacilli have been suggested. One is that the wads are made out of old rags, of straw swept from stables, or other dangerous material. Another is that they come from the saltpeter, which has been insufficiently purified after being obtained from its source from the droppings of bats in caves, etc.

Opposed to the view that the tetanus bacillus exists in the blank cartridge are the following facts:

1. Numerous careful investigations have been made of this possibility by different investigators, examining all the makes of ammunition on the market, during different years, in different cities, and by different methods, and all of them report unanimously (with the single exception noted) that they have never detected tetanus

bacilli. The investigations that we have found published in available literature are as follows:

TABLE 3.

Name.	Year.	Number Examined.	Method.
Wells	1899	200	Culture and inoculation.[1]
Taylor	1899	135	Culture.[2]
Wells	1900	50	Culture and inoculation.[3]
Boston City Health Dept.	1900	350	Culture and inoculation.[4]
LaGarde	1902	24	Culture and inoculation.[5]
Total		759	

A total of 759 blank cartridges have been examined during three years, and in not one has tetanus bacilli been found. It seems highly improbable that so many cartridges can have failed to contain bacilli if they are present in blank cartridges often enough to explain the frequent occurrence of tetanus after the wounds they produce. A possible source of error lies in the frequent occurrence of organisms resembling more or less closely the tetanus bacillus. These have been described in blank cartridges by Wells and by Bain;[6] each describing a different organism, both of which have considerable morphologic resemblance to the bacillus of tetanus, and also resembling it in being anaërobic, so that they might readily be mistaken by a casual examination of smears from the pus or of anaërobic cultures. In cultures, however, they show certain differences from the tetanus bacillus, and they are nonpathogenic. This may explain the positive finding in Newark, in which animal inoculations were not made.

2. By no means all of the Fourth of July tetanus cases are produced by blank cartridges. In this year's epidemic among the cases for which we have been furnished with a statement of the method of production, nearly 10 per cent. have been ascribed to other sorts of injuries, where any cause is mentioned at all. Of these, exploding giant crackers are the commonest cause. Of course, these offer much the same possibilities for contamination as blank cartridges, if not more. However, LaGarde, who examined the powder and paper from 30 fire crackers, representing six different kinds, failed to find the organisms. Explosions of cannons, rockets and other forms of fireworks have all caused fatal tetanus.

3. At the same time that tetanus is occurring from Fourth of July injuries it is also resulting from other injuries in the same places. Wells[7] has compiled statistics of the annual tetanus cases of New York, Chicago and Washington, and finds that there is a seasonal curve, the greater number by far occurring in summer. June, for example, furnishes nearly as many deaths as December, January, February and March together. In other words, Fourth of July tetanus accidents come just at the time of year when tetanus is most prevalent. There have been included in our tables a number of cases of tetanus resulting from other than Fourth of July accidents, and, therefore, not included in the summary, which shows that tetanus bacilli are widespread at that time, and may be inoculated from any sort of injury. It is interesting to note that the states with the greatest number of blank cartridge cases, Pennsylvania and Ohio, also furnish the largest number of cases of tetanus from wounds not related to the celebrations of the Fourth. A few special cases of Fourth of July tetanus that are of significance in this connection may also be cited:

A boy in Chicago, running to get away from a cannon that was about to be discharged, fell and ran a nail into his hand. Tetanus followed and caused his death.

In Pittsburg a boy was playing with a toy pistol under a bridge, when a trolley car running over it jumped the track and fell some distance to the ground, killing several passengers. The boy was not injured, but was so frightened that he caught his hand under the descending hammer of his pistol and received a small cut from which fatal tetanus resulted.

A boy in Minnesota, while trying to enlarge the bore of his pistol with a file, drove the tool into the palm of his hand, the wound causing death from tetanus.

In Washington, D. C., where 4th of July tetanus is very uncommon, presumably because the laws are enforced, a young man with a chemical turn of mind, constructed an amateur Mt. Pelee by erecting a mound of earth over a collection of chemicals. The explosion shattered the glass containers and drove several pieces of glass, more or less covered with dirt, into his body. Fatal tetanus followed.

In Rockford, Ill., a boy loaded a toy pistol with dirt and pebbles, and shot the contents into his hand. A pebble was removed from the hand, but no wad, after the onset of tetanus.

These cases are but samples of many that go to show that tetanus bacilli are present in the street dirt and about the persons of the celebrators. As further evidence we have the fact that in all the places where Fourth of July tetanus occurs the disease is more or less endemic, and if not seen in practice it will be found to occur in horses. In studying the Chicago epidemic no difficulty was found in demonstrating the organisms in street dirt in 1900.

4. The manufacture of blank cartridges is so conducted as to cause little chance for infection with the tetanus bacilli. While, of course, no special precautions are taken to keep out the organisms, and, therefore, the materials are by no means sterile, yet there is no step in the process that would particularly favor the presence of tetanus bacilli, as, for example, would be the case if hair were used, as in the wadding of shotgun ammunition. The pasteboard wads of the blank cartridges have always aroused much suspicion, both because they are so often found in the wounds, and because we have distinct impressions of the sort of material the "rag man" used to collect for the purpose of making paper. We are indebted to the Union Metallic Cartridge Company for the following description of the process:

This board is made of new rags and new cuttings of paper, and also sulphite wood pulp. The rags are cooked in soda ash and lime under high pressure, in a rotary boiler for six or eight hours. They are then put into a washer and thoroughly washed for a couple of hours or more and bleached with chlorid of lime and alum. The paper stock is also cooked in the same manner, but without chemicals being put with it—simply boiled under high pressure. The rags after being boiled are let down into draining chests and thoroughly drained before being mixed with the paper stock in the manufacture of the board. No clay whatever is put into the board, and the coloring matter is a very weak solution of anilin blue, the color being set with a little alum. Generally this board is dried in the loft, although when necessary heat is applied.

It is evident that if even so resistant an organism as the tetanus bacillus were present in the original ma-

1. Phila. Med. Jour., June 16, 1900.
2. N. Y. Med. Jour., July 20, 1901.
3. Med. News, June 1, 1901.
4. Report of Boston Health Department, 1900.
5. THE JOURNAL, Amer. Med. Asso., April 18, 1903.
6. Jour. Boston Soc. of Med. Sciences, 1901, p. 506.
7. American Medicine, June 13, 1903.

terial, and there is no apparent reason why they should be present, they could not survive such treatment as here described. As to the powder, LaGarde says:

> The purity of powder is assured by the high degree of heat to which the three ingredients of the powder are subjected before being incorporated in the form of an explosive compound. These ingredients, as is well known, are, saltpeter, 15 per cent.; sulphur, 10 per cent., and charcoal, 75 per cent. In refining saltpeter the saturated solution of the crude material is heated to a temperature of 250 F., the sulphur is fused from the crude brimstone, in order to remove extraneous matter, and the charcoal is obtained from willow wood after being subjected to a high temperature in a retort.

In all the studies of blank cartridges cited above the powder has come in for investigation, and tetanus bacilli never found. If impure saltpeter were a source of danger we should look for the greatest trouble to come from firecracker explosions, for they are, or at least were, prepared with a much more crude powder than the blank cartridges.

The shells are also subjected to a high temperature and to immersion in baths of strong acid and alkali. They, too, have been often examined with negative results.

On the other hand, it is to be borne in mind that there is not sufficient heat generated in the discharge of the cartridge to destroy tetanus bacilli if they were present in the powder or wads. LaGarde has shown, experimentally, that the organisms when placed on the wads or in the powder of 22-caliber blank cartridges are not destroyed by firing. Such infected cartridges, when discharged in such a way as to injure rats, caused nearly all to die of tetanus.

From all these facts we may conclude that there is no convincing evidence that blank cartridges contain tetanus bacilli, except possibly as a rare contamination when they have been exposed to dirt. On the other hand, there is ample evidence to indicate that tetanus bacilli are present in the street dirt and on the persons and clothing of the injured people. The most reasonable assumption at this time is, therefore, that the organisms are carried into the wounds from the surface at the time of the accident. This has been the conclusion of LaGarde, Wells and all others who have studied this subject experimentally.

The question to be decided is, therefore, why blank cartridge wounds should be peculiarly dangerous, and to this the most plausible explanation seems to be twofold. 1. The wound is received at a time of year when tetanus bacilli are most prevalent, probably because the street dirt that contains them is widely scattered, instead of being frozen solid as in winter, or wet as in spring. It is also received at a time when the victim is usually particularly well supplied with this dangerous dirt. 2. Blank cartridge wounds offer the most ideal conditions for the development of tetanus of any common wound with which we are familiar. If we consider what are ideal conditions for the development of tetanus it will be seen how true this statement is. Ideal requirements call for the following conditions:

(a) First of all the wound should be penetrating, so that anaërobic conditions may obtain. Blank cartridge wounds are nearly all penetrating, especially those that cause tetanus. Often, indeed, they pass through the palmar fascia, and usually the track is well sealed after them.

(b) The penetrating object should carry in any surface dirt present. A nail wound, with its well-known tendency to cause tetanus, can not compare with the blank cartridge in this respect. The wad, usually striking perfectly flat, has a great tendency to punch out and carry before it a disk of skin or of clothing that may oppose it, which a nail would push aside.

(c) Resistance of the tissues should be lessened. Here, especially, the blank cartridge wound surpasses the nail wound. Tetanus bacilli or spores, washed free from toxins, and injected with a minimum injury to the tissues can be destroyed in large numbers by the tissues or blood. Blood clots in a wound are particularly favorable places for infection. Lwowitch and Strich have each shown that tetanus inoculation in animals is far more effective if made into a hematoma than if introduced subcutaneously, and the latter further found that gunshot wounds were much better inoculation places than even hematomas, the symptoms appearing twice as soon and death ensuing earlier. LaGarde found that burning tissues made them most favorable sites for tetanus inoculation. All animals inoculated in a wound made by burning died from doses of tetanus bacilli that were without effect when inoculated into incised wounds. Therefore, the burning, tearing and bruising of the tissues in blank cartridge wounds is of particular import, and no other sort of wound produces these conditions so well. This susceptibility of burned tissues probably explains the not uncommon appearance of tetanus in burns, whether of Fourth of July origin or not, a fact somewhat at variance with the general rule that tetanus bacilli will not live in surface wounds exposed to the air.

(d) Other bacteria being present to remove oxygen and to destroy tissue resistance also favor tetanus. Blank cartridge wounds, with their large amount of introduction of extraneous material, practically always cause mixed infection.

THE PREVENTION OF FOURTH OF JULY TETANUS.

Our chief object in this work has been the establishment of a basis for consideration of Fourth of July tetanus from the standpoint of preventive medicine. It is for this reason that we have considered to such an extent the question of the source of the infecting tetanus bacilli that cause the disease. We confess that at first it seemed to us that the bacilli *must* be present in blank cartridges, and had that been the case the prevention would have been a simple matter.

In the absence of any positive demonstration of their presence in the cartridge, the other facts that have been recounted concerning these particular wounds seem sufficient to explain their peculiar danger. It is, therefore, evident that we can not secure safety by some modification in the method of manufacture, a thing the manufacturers would be willing to attend to promptly to escape responsibility. The only way to prevent Fourth of July tetanus that can be successful must prevent the use of blank cartridges altogether. The ideal way would be to attack the source of the evil, by prevention of manufacture and importation into the country of blank cart-

ridges. We know of no essential purpose that blank cartridges serve—their occasional use in melodrama and in starting foot races could easily be accommodated in some way not calling for an annual sacrifice of several hundred lives. Presumably, this would be distasteful to the manufacturers, and it is impossible to say in advance what their attitude would be if they were brought face to face with the proposition that they are the sole cause of the unnecessary death of over 400 boys in the United States every year. It would be pleasing to believe that sound business men, such as we know them to be, would be willing to forego a certain amount of income, donating this, if you please, to the cause of public safety. Might it not be well for the American Medical Association to present this proposition in all its significance to the manufacturers? What the possibilities are for legislation in this direction we are unable to say. Might not this matter of the prevention of Fourth of July tetanus be a proper theme for action by the Association at the next annual session?

As for the manufacture of toy pistols, much the same things are to be said. These flimsy contraptions serve no good purpose, and outside of their relation to tetanus there is one particularly bad feature, namely, their tendency to cultivate in young boys the habit of carrying pistols. "The hip pocket arsenal" is one of our great American vices, responsible for many unnecessary homicides and accidents, and it is not imaginative to consider that putting blank cartridge pistols in the hands of boys is a contributing factor to its prevalence and perpetuation. However important the toy pistol itself may be in causing tetanus, it is secondary to the blank cartridge, for many accidents result from ordinary revolvers, and, of course, the cessation of the production of the cartridges carries with it the end of the toy pistol.

Lacking any immediate means of terminating the production of blank cartridges, and while hoping for its speedy accomplishment, we have another tried and proven method of checking these accidents by stopping their sale in each individual city or town. The feasibility of legal intervention here has been shown, for most of the larger cities have ordinances covering this matter more or less adequately, although many of them seem to have become lost through disuse. However, they do exist, and where lacking can be readily provided, for they come into the proper province of the city authority. The difficulty lies in the enforcement. For example, in Chicago such an ordinance is well known to exist, occasional prosecutions having been made under it. Almost annually a mayoralty proclamation has been made concerning Fourth of July injuries, and the necessity of suppression of the sale of toy pistols and blank cartridges, and the police are ordered to enforce this ordinance. Yet there is no difficulty in procuring blank cartridges and toy pistols, as we have learned by experiment. This year, when the tetanus deaths began, long after the Fourth had passed, orders were given the storekeepers not to sell toy pistols, and it was found that some dealers were obeying the law. However, there were others who still sold them, with the admonition not to say anything about it, as "the coppers have given us orders we can't sell them." Not until numerous prosecutions have been made can the dealers, chiefly proprietors of small confectionery and notion stores, be frightened into obeying the law. In Philadelphia some attempts have been made in this direction, and the newspapers report that the father of one of the dead boys has brought suit against the man selling the pistol. The inefficiency of municipal authorities is particularly seen in Philadelphia, where a full warning had been given by an epidemic of tetanus after the Decoration Day celebration. Deaths from this celebration were still occurring when the epidemic of the Fourth began. Here, if ever, was the presence of an example and a warning to stir some one to action, but that this action was not forthcoming is evident from the development of perhaps the worst Fourth of July epidemic in the history of the state.

Probably but little can be done by education of the boys themselves. "It isn't Natur'." One writer has remarked that a boy could be shown 200 other boys dying from lockjaw, and that if he were then given a quarter, and the Fourth were coming, he would go out and buy himself a toy pistol and a box of cartridges. This may be exaggeration, but not for all boys. However, there are some who can be reached by instruction, and some sound advice given by their teacher just as school is closing for summer before the Fourth, might save some lives at least.

Education of the parents is evidently called for also, to judge from the number of cases in which the information was given that "the boy's mother dressed the wound herself, thinking it of no consequence." They will probably be reached best through the daily papers, and we wish again to express appreciation of the efforts that the press, almost as a whole, has made. Some papers have conducted a long campaign with an evident sincerity of purpose that is pleasing in contrast to the attitude that has occasionally been taken in relation to some matters of preventive medicine. One great obstacle lies in the fact that a very large part of the cases occur among the children of the illiterate, which also indicates the value of parental control among the better classes. So long as blank cartridges continue to be sold to children, however, education of parents to do their best to prevent their use, and to secure proper treatment of the wounds they may produce, must be continued.

And, lastly, there is room for improvement in the way in which many physicians care for blank cartridge wounds that come to them. There, unfortunately, exist physicians who do not keep informed on either medical or popular progress, and to whom a blank cartridge wound is a blank cartridge wound, and nothing more. At least there have been many physicians who have seen such wounds shortly after they have been received, who have been content with simply dressing the wound, often without even an attempt to remove the wads and other foreign matter contained therein. And often these physicians have occupied positions in hospitals and dispensaries that would seem to indicate their possession of more than average information. With the excellent knowledge that we possess of the bacillus of tetanus and the widespread familiarity with the danger of blank cartridge wounds, such inefficient treatment is censurable. Bain has well demonstrated the efficiency of thorough

surgical technic in preventing tetanus by his report of a case of blank cartridge wound so treated, in the secretions of which tetanus bacilli were demonstrated, and yet tetanus did not occur. Prophylactic use of antitoxin is also to be urged where it is available. Veterinarians have accumulated ample evidence of its efficiency as a prophylactic, which is in marked contrast to its slight power as a curative agent. In man there is also plenty of evidence that it is equally effective, and altogether without harm. It has been used by Taylor for prophylaxis in blank cartridge wounds with complete success. He has used it in many cases, always without harmful results, and with no tetanus, although in other cases where antitoxin was not used tetanus has most apparent to the public are those which occur during the celebration. Aside from tetanus in the celebration of the Fourth of July this year 60 deaths were caused, 10 persons made blind, 75 persons lost one eye, 54 lost hands, arms or legs, 174 lost one or more fingers and 3,670 received other injuries, making a total of 3,983 persons injured. Adding the deaths from tetanus and from other causes, 4,449 persons are dead or injured. These facts are embodied in Table 4.

This appalling summary is not given as an item of sensational news, but to arouse efforts in the line of prevention. The table speaks for itself, and deductions from it are easily made by anyone. It will, however, add to the value of the table to note the following facts:

TABLE 4.—SUMMARY BY STATES OF JULY FOURTH CASUALTIES.

STATE.	Deaths			Injuries.						Total Persons Dead or Injured.	Causes of Tetanus Cases.		Causes of All Cases Aside from Tetanus Cases.				
	From Tetanus.	From Other Causes.	Total.	Loss of Sight.	Loss of One Eye.	Loss of Legs, Arms or Hands.	Loss of Fingers, One or More.	Other Injuries.	Total Non-fatal Injuries.		Blank Cartridge.	All Other Causes.	Blank Cartridge.	Fire Crackers.	Cannon.	Gunshot.	Powder and Fireworks.
Alabama								2	2	2							2
Arizona								1	1	1							1
California	2	1	3			3	5	89	97	100	2		36	20	16	1	20
Colorado	4		4		1			34	35	39	3	1	17	7	2		8
Connecticut	3	2	5		2	2	2	151	157	162	3		69	38	30	1	18
Delaware							1	1	1	1				1		1	
District of Columbia	1		1					1	1	2		1					1
Florida								1	1	1				1			
Idaho	1		1				2	1	3	4	1			3			
Illinois	49	10	59	1	14	7	17	268	307	366	43	6	83	117	37	16	53
Indian Territory	1		1							1	1						
Indiana	11	3	14	1	4	3	11	127	146	160	11		54	54	15	4	33
Iowa	14	2	10		3	4	5	139	152	168	12	2	52	46	19	6	32
Kansas	11	2	13		1		2	47	50	63	10	1	30	13	1	2	5
Kentucky	4		4				2	24	26	30	4		10	5	5		6
Maine	2	1	3		1	1	3	23	28	31	2		11	13	2		3
Maryland	1		1	1	1			18	20	21			3	12	2		3
Massachusetts	16	1	17	1	7	6	18	588	620	637	14	1	234	187	46	17	132
Michigan	28	3	31		2	2	7	102	113	144	24	1	38	42	12	3	18
Minnesota	14	1	15		2	2	10	128	142	157	14		52	44	22	6	23
Missouri	27	2	29	1	5		1	111	118	147	23		69	16	7	6	13
Montana	2	1	3					2	2	5	2		1	1			1
Nebraska	4		4					42	42	46	3		12	10	3	4	9
New Hampshire	2		2				2	33	35	37	1		6	17	4	3	5
New Jersey	8		10		2	2	8	206	218	228	6	2	43	41	22	32	55
New York	33	8	41	2	9	4	29	437	481	522	29	3	155	149	49	40	66
North Dakota						1	1	8	10	10			1	2	3		4
Ohio	66	11	77		11	8	25	322	366	443	63	2	125	97	39	31	67
Oregon	2	1	3			1		12	13	16	2		7	3	1	2	1
Pennsylvania	80	6	86	3	9	7	16	412	447	533	74	5	128	83	36	46	78
Rhode Island	3	1	4				2	58	60	64	2	1	19	22	4	1	19
South Dakota								4	4	4							3
Tennessee								4	4	4				1		1	2
Texas								2	2	2			1	1			
Utah					1		1	21	23	23			7	10		1	6
Vermont	3		3			1	1	40	42	45	3		6	16	4	3	12
Washington	2	2	4					17	17	21	1	1	1	7	2	1	2
West Virginia	3		3					16	16	19	3		6	7	2		1
Wisconsin	10		10				3	177	180	190	7	2	33	65	12	8	49
Wyoming								1	1	1				1			
Total	406	60	466	10	75	54	174	3670	3983	4449	363	29	1309	1152	397	236	731

followed. His method has been to follow thorough surgical cleansing with injection of 5 to 10 c.c. of antitoxin, repeated in a few days if the wound does badly.

A great help in any future efforts to stop this annual epidemic will be the collection of complete data of all the cases, in a more official and complete manner than it has been done in this paper. This must be the work of either municipal or state boards of health. Such an inquiry has already been started by the Michigan State Board of Health, and it is to be hoped that other states will also take up the matter. There is also need for further study of blank cartridges, since their freedom from tetanus bacilli is still undetermined.

B. DEATHS AND INJURIES ASIDE FROM TETANUS.

Above have been discussed the cases of tetanus incident to the Fourth of July celebration, but the injuries

SOURCE AND RELIABILITY OF STATISTICS.

A detailed list has been compiled of the 4,449 persons dead or injured, giving the name or description of each, the nature of the injury and the cause. These are classified under cities and states, and from this list Table 4 has been prepared. The facts were furnished by the newspapers from the various sections of the United States. Only such cases have been listed as presented names and data, or, in the absence of the name, a case has been included when it bore such marks of identification that it could be distinguished from other cases in the same city. All doubtful cases have been omitted.

Concerning the number of injuries here reported, it is safe to say that not two-thirds, perhaps only one-half, of those occurring in the United States are here presented. In evidence of this fact, it is worthy of note

that the large city of Washington, D. C., is represented by but one case. The newspapers of Philadelphia stated that 500 people were injured in that city in the Fourth of July celebration, and that 380 received hospital treatment; in comparison with this accounts of only 151 were received. In another city the newspapers stated that there were 90 persons injured; the table contains 10. Further, it is evident that the absence of statistics in certain states can not be explained on the ground that accidents did not occur.

This table contains only deaths and injuries directly due to explosives of one kind or another. For example, we have not included several deaths which occurred from fright and from heart disease, nor several deaths occurring in runaways caused by firecrackers. Another death not included is that of a butcher who committed suicide to escape the noise and turmoil incident to the day. Other injuries not included may be illustrated by the following: In the endeavor to escape from firecrackers, cannon, etc., after they had been lighted, several people sustained fractured bones and other severe injuries; one man was killed by a train while putting a torpedo on the track, and a boy while shooting firecrackers on a roof fell five stories and broke his leg.

Because of the paucity of newspaper accounts in certain communities, it may easily have occurred that some of the injuries here cited eventuated in death, blindness or loss of members, inasmuch as the accounts have stated that "the injuries may prove fatal," or "the physicians give little hope of saving the boy's sight."

In the tabulation of injuries, where one person lost an eye and a finger, for example, he was counted in but one column; therefore, the total number of persons who lost fingers exceeds the total at the foot of the table.

Under the heading of "other injuries," it is worthy of note that the following are included: Fracture of the skull, of the leg, of the arm, etc.; loss of hearing, loss of patella, loss of nose, loss of ear, penetrating wounds of lung, brain, abdomen, etc. The majority of injuries, however, were wounds and burns of the face, eyes and hands. All accidents are included that were incapacitating or that required medical attention.

It may occur to someone that perhaps some of the minor injuries recorded in Table 4 later developed into tetanus infection and resulted in death. This is the case. A careful comparison, however, of the cases in the tetanus list with those in the list of injured shows that comparatively few of the former appear in the latter. For this reason and because the list of injured is grossly incomplete, the fact that some few persons are really counted twice in the total number of persons dead or injured is not very important. The reasons for the absence of certain tetanus cases in the list of injured are two: The list of injured is incomplete, and—a very instructive point—the tetanus cases were, in many instances, caused by wounds too trivial to be reported or to be included in the list.

DEATH AND INJURY ABROAD.

These statistics are concerning the United States. Although the national holiday is celebrated in other lands by some few persons, only the following cases of death or injury have been reported: In Ceylon, a British gunner was killed and another was injured by a cannon while firing a salute in honor of the United States. In Canada a boy was injured by a firecracker.

THE CAUSE OF INJURY.

Specification of the causes of tetanus shows that 363 cases were due to the blank cartridge or toy pistol, while all other causes together were responsible for a total of only 29 cases. In comparison with this, the causes of other injuries are divided more evenly between the blank cartridge, the firecracker and the other uses of powder. To make it exact, the blank cartridge caused about 33 per cent. of the non-tetanus injuries, but caused over 92 per cent. of the cases of tetanus.

In other words, the danger of accident in the use of the blank cartridge may not be much greater than from the use of other means of celebration, but the danger of tetanus is shown to be extraordinarily greater when the blank cartridge is used. To make the statistics of more value, it would be interesting, if the facts were available, to know what proportion of those engaged in celebrating do so with the toy pistol, how many with firecrackers, how many with cannon, etc. The injuries from firecrackers are largely from the large variety, from their accidental and unexpected explosion, and especially from the carelessness of persons who held them in their hands while they went off. Many crackers are loaded with dynamite, and persons fail to realize the power hidden in them. Gunshot injuries (bullet wounds) are notably in excess in the cities, because of the number of persons in the cities who carry weapons. The injuries from toy cannons, powder burns and fireworks (for evening display) may be taken as such as have occurred for many years. The increase in injuries of late years may be assigned to the great increase in use of the cannon-cracker and the blank cartridge. These were deadly additions to the boy's armament, and they together caused 2,461 of the 3,825 injuries for which causes were assigned, or over 64 per cent.

In explanation of the column headed "powder and fireworks," it may be said that this includes all the causes not in the other columns. To summarize: Nearly one-half of these injuries were caused by the use of powder, about one-third by fireworks (for evening display), and the remainder of cases in this column were from miscellaneous causes, such as torpedoes, paper caps, chemicals, matches, etc.

The first column of causes, that of blank cartridges, includes blank cartridges and toy pistols, also a very few cases of injury from the use of the cartridge cane. These latter cases are included in this column because they use the blank cartridge or small metal dynamite caps, and the explosion and the injury are almost identical with those caused by the discharge in the toy pistol.

Since the cause was not stated or was ambiguous in the accounts of many accidents, the total number of cases under the heading of causes is less than the number of persons dead and injured.

The causes were plainly stated for 58 of the 60 violent deaths and are as follows: Blank cartridges, 11; firecrackers, 14; cannon, 14; gunshot wounds, 9; powder burns or explosions, 4; fireworks, 3; torpedo, 1; caps, 1; matches, 1. A number of these fatal wounds and many injuries were received by innocent passersby.

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THE FOURTH OF JULY CELEBRATION.

The Fourth of July, with its casualties, has come and gone, and we can now count up the cost. Elsewhere in this issue we give a summary of the accidents, so far as reported to us, and a special analysis of the tetanus cases. The truly formidable showing made is well worthy of serious contemplation. We like to consider ourselves a smart people, but there are some facts that are troublesome to this conceit, and the present method of celebrating the nativity of our national independence is one of them. True patriotism is an excellent thing, but no one serves his country by making his nation's birthday a day of peril to life, limb and property. It would be a rash calculation that would estimate that even 50 per cent. of those celebrating the Fourth have any real spirit of patriotism in the act. All that is wanted by them is to make a noise and indulge in a license not allowed on other days. An English writer whose works used to be very popular with boys says, in effect, in one of them that he can gauge the decadence of a people by the amount they spend for fireworks. While we would not exactly endorse his utterance, we certainly consider such expenditures as we have each Fourth as very far from being an index of national intelligence. It is, in fact, a blot on our record. It would be better to abolish the Fourth of July as a holiday, and to keep it only as a glorious tradition, sadly dimmed by recent experience of its celebrations, than to continue the annual sacrifices we now make to its memory.

Two facts stand out in the consideration of the annual holocaust—one is that there was no lack of warning or even of legal prohibition in some sections from which the worst experiences are reported. In Pennsylvania, the state which records the greatest number of toy pistol tetanus deaths, the sale of toy pistols to boys under 16 seems to have been illegal and prosecution of dealers is being urged by the State Board of Health. Lawbreaking followed by homicide, for this is nothing else, is a pretty serious matter, as some of these unscrupulous commercialists may find it. The other fact is that the victims of this annual tragedy are mostly immature boys whose discretion is always questionable and who should be protected by law, if not by parental control, from just such possibilities. It is a massacre of the innocents often in one, and sometimes in the other, sense of the word. "Butchered to make a Roman holiday" is a favorite old quotation that may yet come to need a modern adaptation.

We trust that our readers will utilize the statistics we present this week as an argument for more active repression of the lawlessness which accompanies the annual celebration of our national independence. Warnings have not been brilliantly successful in the past; but by persistent and frequent repetitions they may accomplish something each year, until finally the annual sacrifice is done away with. Four hundred and sixty-six lives sacrificed, 10 persons made totally blind, 95 eyes lost, beside 500 other persons maimed and disfigured for life, is a record that calls loudly for justification, and, finding none, demands termination.

Reprints of the matter, with the tables, will be supplied in any quantity at a nominal price, and should be ordered at once. These may be useful to distribute among those whose duty it is to prevent the dangerous methods of celebrating, viz.: city aldermen, mayors, etc., etc. Any corrections, additions or suggestions as to this matter should be sent at once.

THE PREVENTION AND TREATMENT OF FOURTH OF JULY TETANUS.

We now turn to the chief factor in the mortality—tetanus. With over four hundred deaths from lockjaw as a result of the demonstration of a single Fourth of July—more than the entire loss of life from wounds in a good-sized modern battle—surely it is time for something to be done, for there is no evidence that this year's mortality is any greater than that of other years. The astounding total of 415 cases of Fourth of July tetanus, however, is probably below the actual number, for we have every reason to believe that many more cases have been omitted from our statistics than have been erroneously included. That the total is astounding is probably because this represents the first attempt, with which we are acquainted, to collect the accidents of the entire country into one group. That such a summing up of the fearful results of a Chinese celebration of an American holiday may stir up enough feeling in the proper places to lead to some action toward its termination is our motive and hope in undertaking this work.

There are several parties involved in the crime. First, there are the municipal authorities who have before them laws directed toward controlling the dangerous forms of celebration, which they make inefficient or make no efforts to enforce. Secondly, there are the dealers in toy pistols, who, for the sake of a very trivial income, violate the laws that exist in most cities against the sale of firearms to minors. These two must be considered the primary culprits, for they are acting in violation of laws that have been made for the express purpose of preventing this very unnecessary mortality. Manufacturers of blank cartridges and toy pistols are simply complying with a popular demand, and are not culpable in the same degree as they are violating no laws, although they must appreciate the fact that they hold in their hands the essential means of continuing or ceasing the trouble. As for the parents of the boys, they are usually either ignor-

ant of the actions of the boy, or of the danger of his pastime, and they are often completely unaware of the danger of the blank cartridge wounds.

After going through the reports of all these four hundred cases, and reading all procurable lay press comments and explanations, it seems to us that the only method that offers much hope of success must be directed at the primary seat of the trouble, the blank cartridge itself. Arraignment of municipal authorities and prosecution of dealers in toy pistols and blank cartridges can have but local effects, and the trouble is universal. Our figures show that the blank cartridge is responsible for such a very large proportion of all the cases, over 90 per cent., that control of this danger will leave the rest a relatively simple matter. But how are the blank cartridges and toy pistols to be removed from the Fourth of July program? There are, so far as we can learn, but four manufacturers of blank cartridges in the United States and one in Canada. Whether they can be prevented from manufacturing or importing the perfectly useless blank cartridge or not is a matter to be determined by the proper legislative body. If this can be accomplished we shall be rid of the greatest danger, if not the greatest nuisance of the Fourth. If national intervention is impracticable it is certain that state legislatures can prohibit the sale of blank cartridges and toy pistols within their boundaries—it certainly is as proper a subject for legislation as the cigarette, and there probably would not be as great opposition by commercial interests. Some of the state boards of health are already taking up a study of Fourth of July tetanus, and the results obtained will be valuable, especially as material for directing legislative action.

Until the sale of blank cartridges has been stopped there is much to be done in the way of popular and professional education. Parents must be taught that toy pistols are to be kept out of the hands of children. The fact that a large proportion of the cases of tetanus have occurred in the children of the poorly educated is an indication that parental control is not without effect. They are also to be taught that every Fourth of July wound possesses great possibilities of causing lockjaw, and requires skilful medical care. This instruction they will receive chiefly from the daily papers, but in smaller communities much can be done by the physician. The need of some means for popular information in preventive medicine is illustrated again in this case. And in turn it is to be expected that the family physician will appreciate the gravity of the situation when a boy is brought before him with a blank cartridge wound, no matter how trivial that wound may seem to be. Not only does it demand thorough surgical cleansing, but also prophylactic injection of antitoxin. Fortunately, the incubation of tetanus is so long that unless the case occurs in some unusually isolated community, antitoxin can be procured before the disease has manifested itself, for then, in most cases, serum treatment is of no avail.

It is evident that the treatment of tetanus must be prophylactic, for the returns from these cases of the Fourth show how little has been accomplished in the direction of cure. But a very small percentage of recoveries, apparently under 5 per cent., has occurred, in spite of quite general use of antitoxin. It has been well said that the patient who is just showing tetanic symptoms is not beginning to have tetanus—he is beginning to die from it. The spasms of tetanus are practically the death agonies of an infection that has existed several days before their onset, and experience has shown that tetanus antitoxin is then of but little value. We may look to Fourth of July tetanus to furnish us with much information concerning the treatment of the disease, since these cases constitute such a large and concentrated part of our experience, but so far the results have only served to emphasize the importance of prophylaxis and the futility of curative measures. Surgeons who have carefully cleansed and drained blank cartridge and fire cracker wounds have had few cases of tetanus; surgeons who have also given antitoxin while the wound was fresh have had none.

Perhaps the most promising suggestion in the way of curative treatment is that of Luckett,[1] who has reported two recoveries, and informs us of two more yet unpublished. This is the intraspinal method of antitoxin administration, which has already been used somewhat in Europe. It is much less dangerous than the intracranial method, and seems much more logical. The chief manifestations of tetanus come from the injury of the anterior horn cells of the cord—not from the cerebral cortex where the antitoxin is introduced in the intracranial method. There is much reason for believing that the toxin reaches the cord along the nerve sheaths from the point of injury, rather than by the blood, and it has been shown that the cerebrospinal fluid is more toxic than the blood serum in tetanus. Therefore, intraspinal injection permits of application of the antitoxin where it would seem to be of greatest value, and it also gives an opportunity for letting escape as much as possible of the highly toxic cerebrospinal fluid through the needle, before injecting the antitoxin. On this last point Luckett lays much stress, and it would seem theoretically to be an important factor. At any rate, the brief use of this method has given such excellent results, and it is based on such sound principles, that it should be given widespread trial.

RECENT WORK ON CELL POISON OF ANIMAL ORIGIN.

Few available tissues of the body remain for which some one has not produced, or attempted to produce, a specific cytotoxin by immunization. Théohari and Babès have the latest cytotoxin—a gastrotoxin, produced by injecting the mucous membrane of the cardiac end of the stomach of dogs into goats. A part of their method is unusual, in that they suspended the emulsion of tissue

1. Medical News, April 18, 1903.

in 1 per cent. salicylic acid solution, instead of the normal salt solution which is ordinarily used. The reason for this is not stated, but probably it was to combat the bacteria which no doubt were present in the mucous membrane. Three to four injections of the emulsions, given at intervals of ten to fifteen days, gave a fairly toxic serum, of which 15 to 60 c.c. were injected into the jugular veins of dogs. By way of control, it was found that 60 c.c. of normal goat serum injected similarly produced no symptoms in dogs. Injections of small amounts of the toxic serum (15 c.c.) caused vomiting and hemorrhage into the intestines, some of the animals recovering and others dying. Larger amounts of a strong serum (60 c.c.) caused death in ten to twenty minutes. Necropsies showed lesions limited to the cardiac portion of the stomach and the small intestine. These portions were congested and blood was present in the bowel. Histologically, the peptic glands showed a condition of the cells seen in hypersecretion, particularly after large doses of the serum had been given. Many of the chief cells and lateral cells had lost their granulations and the former are stated no longer to have contained pepsin. The cytoplasm of many cells was uniformly cloudy. In Lieberkühn's glands the cells were often cloudy, and the capillaries underlying the affected surfaces were widely dilated. They concluded that the chief degenerative changes were in the lateral cells. The authors are unable to explain that the small intestine and cardiac end of the stomach should be attacked while the pyloric portion and the large intestine were uninvolved.

This work is interesting, and there probably is no reason why the cells of the gastric mucous membrane should not yield a cytolysin as well as other cells. But so far as one can judge from the article mentioned, the work of Théohari and Babès is too incomplete to justify all the conclusions they have drawn. What most arouses suspicion is that they apparently assign the rapid death in some of their animals to the toxic effect of their serum on the mucosa of the stomach, omitting examination (or at least mention) of the conditions in more vital organs. If the action of the immune serum was selective and specific for the epithelium of the stomach and intestines, it is difficult to see how the slight injury to these structures recorded could produce death in fifteen minutes. There is, indeed, sufficient evidence in their report that the serum was not absolutely specific for the cells of the gastric mucosa. The hemorrhages into the bowel probably could not have been caused by any amount of lysis of the epithelial cells. It has been shown by various investigators that hemorrhages may be caused by many toxins, the result apparently of a solvent action on the endothelial cells of the capillaries by special substances — endotheliolysins, Flexner's "hemorrhagin." It is also not excluded in their work that hemolysin and hemagglutinin were not produced by the immunization. In addition, it may be stated that intravenous injections of other cytolytic sera are able to cause vomiting, and bloody stools and urine. It is not improbable that careful examination of other organs in these experiments would have shown pulmonary or cardiac conditions sufficient to explain the sudden death of some of the animals. Workers with immune cytotoxic sera have noted that a fatal pulmonary edema may occur in a few minutes following the intravenous injection of a large amount of a toxic serum. The exact cause of this edema remains unexplained as yet, but it seems probable that it is due to endotheliolytic effects or embolism of agglutinated red blood corpuscles. The study which Kraus and Sternberg made of the tissues of animals killed by injections of immune hemolytic serum, indicate that other cells than those for which the serum is supposed to be specific, may be injured. They frequently found focal necrosis in the liver and cloudy swelling of the kidneys in their animals. On the whole, recent works of immune cytolysins seem to show that attempts at immunization with one type of cell may yield a serum, which is toxic not only for this cell, but for others also—polytropic, rather than monotropic in its action. That is to say, in terms of the side-chain theory, that particular cell, besides having receptors peculiar to itself, also has some which may be found in other cells. Hence, in immunization, antibodies would be produced for more than one kind of cell. Hence the efforts to produce absolutely specific, cytotoxic antiserum may be quite hopeless, even in cases where it is possible to secure for injection cells of one kind only.

Similar results are noted in immunization with bacteria; for example, immunization with the typhoid bacillus yields a serum which, in addition to agglutinating in high dilutions the typhoid bacillus, will also agglutinate the colon bacillus in higher dilutions than the normal serum. To know that this lack of specificity does exist at any rate makes clear how certain bacterial poisons which have a high affinity for certain tissues are able at the same time to injure other tissues, as in diphtheria for instance.

THE AMEBA OF DYSENTERY.

Now that the study of the pathogenic protozoa has become the order of the day, it is reassuring to find that observers trained along zoologic lines are directing more and more attention to the study of these microörganisms. An interesting example of the progress that can be hoped for from studies of this character appears in the recent work of Schaudinn[1] on the life history of certain ameboid organisms. Schaudinn calls attention to the fact that the group of so-called amebæ is by no means zoologically well-defined, and that it doubtless contains organisms of most heterogeneous character with widely diverse life histories and uncertain zoologic affinities. In the course of studies that have extended over a period of eight years on the parasitic rhizopods of the human alimentary tract, Schaudinn has made the important discovery that the ameba present in

1. Arb. a. d. k. Ges., 1903, xix, Heft 3, p. 547.

healthy individuals possesses a developmental history radically different from that of the ameba found in dysentery, and that, therefore, on purely zoologic grounds, the two organisms must be regarded as quite distinct. For plausible reasons the former organism is newly designated by Schaudinn as *Entamœba coli,* and the ameba of dysentery, by a similar change of nomenclature, is called *Entamœba histolytica.*

The ameba of the normal intestine multiplies both by simple division and by a process that used to be termed spore-formation, but that zoologists now denominate schizogony. The latter phenomenon is preceded in *Entamœba coli* by remarkable nuclear changes. In brief, these consist of ordinary reduction divisions, after which a conjugation takes place between two daughter nuclei that have arisen from the same mother nucleus. Mitotic division then proceeds and the protoplasm of the cyst comes eventually to contain 8 nuclei; finally a division of the protoplasm takes place and 8 small amebæ are formed. A close analogy to this singular process has been observed by Hertwig in *Actinospherium,* where a similar conjugation occurs between two daughter nuclei derived from the same mother nucleus.

The process of reproduction of *Entamœba histolytica* follows a different course. Nuclear division of a regular character is entirely absent or at least has not been observed. Instead, a kind of fragmentation of the chromatin takes place, the remnant of the nucleus itself being expelled from the cyst. Small spherical bodies, 3 to 7 microns in diameter, are formed in the cyst, each of these presumably containing some of the finely fragmented chromatin. Schaudinn showed experimentally that these spores of *E. histolytica* were capable of causing serious intestinal symptoms and lesions when fed to cats. In addition to the great difference between the two species of *Entamœba* in their method of reproduction, an important morphologic difference, already dwelt on by Jürgens,[2] is reaffirmed by Schaudinn. This is the stiff hyaline structure exhibited by the ectoplasm of *E. histolytica.* In this species the outer zone of the protoplasm is always sharply delimited from the inner, and it is apparently the possession of this firmer layer that enables the dysentery ameba to thrust its way into the tissues.

The differentiation of the ameba found in dysentery from the form so commonly present in healthy individuals has heretofore proved a matter of some perplexity, and the apparent identity of the two forms in their ordinary phase has in the past given rise to confusion and misunderstanding. Schaudinn's researches will certainly be welcomed by pathologists as tending to establish the complete zoologic independence of the two species. More confidence than hitherto will be felt in attributing to *Entamœba histolytica* a causal rôle for the peculiar dysenteric disease with which it is associated.

2. Veröffentl. a. d. Geb. d. Militärsanitätswesens, 1902, xx, p. 110.

LEMON JUICE AND TYPHOID FEVER BACILLI.

At the end of the year 1902 and during the early part of 1903, much was published in the medical and lay press regarding the action of lemon juice on typhoid bacilli. Reports from the laboratory of the public health department of one of our large cities claimed that "a teaspoonful of lemon juice to half a glass of typhoid infected water is sufficient to destroy the vitality of the contained germs and thus to prevent their production of the toxin or poison which causes typhoid fever." From the same source the suggestion was also sent out that oysters infected with typhoid bacilli could be rendered innocuous by pouring lemon juice over them. These ideas were eagerly taken up by the daily papers, and as a result many people entertain the false idea that lemon juice in water and on oysters protects them from danger of typhoid fever when these are swallowed.

As has been shown by subsequent observations, the juice of lemons possesses no such germicidal power, as these statements would indicate. W. Johnson[1] has found that typhoid bacilli are capable of increase after exposure of 24 hours to a 2 per cent. solution of lemon juice, and after 20 minutes to a 9 per cent. solution. His results are entirely opposed to the newspaper statements of disinfection by a 1 per cent. solution in an hour or less. W. D. Greene,[2] health commissioner of Buffalo, has just published the results of a series of experiments by the city bacteriologist. They were undertaken to determine the germicidal property, if any, of the mixture known as lemonade. The experiments emphasize the necessity of discriminating between simple inhibition and destruction in all tests of germicidal agents. Typhoid bacilli were not killed by exposure of 45 minutes to a mixture of the juice of one-half a large lemon in a glass of water. Greene concludes that lemon juice in the proportion described is not at all to be depended on in rendering polluted water safe for drinking purposes. As to the ability of lemon juice placed on the surface of oysters to destroy typhoid bacilli deep within the body of the oyster we know nothing, but we have every reason to believe that no such result will occur. It was shown nearly 15 years ago by Kitasato that acetic acid in a strength of 0.2 per cent. and citric acid in a strength of 0.43 per cent. would kill typhoid bacilli in 5 hours, and that much weaker dilutions of the acids would inhibit the growth of the bacteria. The results of the tests on which the reports referred to at the beginning of this article were founded had evidently been misinterpreted, and simple inhibition of growth by the lemon juice which was carried over to the nutrient medium mistaken for destruction of the bacteria.

The fate of the lemon as a preventive of typhoid fever again calls attention to the desirability of submitting the results of scientific investigation to medical societies and publications so that they may be substantiated or disproved before they are rushed before the general

1. Northwest Medicine, May, 1903.
2. Bull. Del. State Board of Health, No. xvi, July, 1903.

public. The public, having once learned of an easy way of preventing typhoid fever by simply squeezing lemon juice into water, or on oysters, will not be so ready to return to the more troublesome procedure of boiling water. Thus the results of years of teaching are lost in part at least on the public in a single day. Another unfortunate result of such experiences is that they place the laboratory which makes the mistake in a bad light before the profession, and subsequent reports from the same source are apt to be received with suspicion.

THE RURAL LABORATORY.

Last week we called attention to the practical value of blood examination, and its great importance as a means of diagnosis and to the simplicity of its technic.

But valuable as is this method and simple as is the technic, it yet requires not alone a training in bacteriology, but apparatus, media, etc., that must constantly be on hand and ready at all times to be brought into use. In larger cities with their medical colleges, hospitals and municipal laboratories there is comparatively little difficulty in finding the man and the appliances close at hand. But what about the "country doctor" and physicians in small towns? How can they, however much they may desire it, make their early diagnosis of typhoid or of pneumococcus bacteriemia by the blood examination? It is well-nigh impossible for the average physician in the smaller town, or in the city for that matter, even though he may possess the requisite knowledge and technical skill, to keep his private clinical laboratory up to the mark, supplied with fresh culture media and stock control cultures, or to watch and follow through carefully a bacterial growth. He must depend on assistance.

The solution of this difficulty lies in one of several directions. The busy practitioner may attach to himself a competent recent graduate who will have charge of the private clinical laboratory. Or the man who is not too busy may be able to attend to practice and to the laboratory work, too. But it will be a rare man who will do this for a long time. A more practicable plan is for several physicians in a small town, or even in adjoining towns, to unite in supporting a small clinical laboratory that shall be in charge of some suitable man, naturally, a recent graduate, but one with good laboratory and hospital training. He may be paid by salary, or in any other way that is mutually arranged. The apparatus may be his own or belong to the physicians who support the laboratory. These are details that can be settled according to local conditions. This communal rural laboratory, within telephonic call of all physicians for miles around, would be an immense help to the country physician and would have an influence that would be distinctly elevating not only on the medical profession of the neighborhood, but on the public as well. A demonstration of the practical value of applied scientific knowledge would arouse in the people an increased interest in medical matters, create a heightened respect for the physician, and bring about a more intelligent discussion of, and action on, matters of personal and public health.

By all means let us have rural laboratories, either private, communal or under the supervision of local or county medical societies. This work county societies in many places could well take up. There is no reason why the city should have a monopoly in the way of examining sputum, stomach contents or blood. There is every reason why in the smaller towns work of this sort should be done, differing from that done in the city only in quantity.

Medical News.

MARYLAND.

Baltimore.

Cocain Addiction Increasing.—Retail druggists say that the demand for cocain is increasing. One pharmacist, whose store is centrally located, is said to take in from $5 to $10 in 5 and 10 cent sales of cocain every night between 11 and 1 o'clock.

Personal.—Dr. Joshua W. Hering has declined renomination as state comptroller, which he has held for two terms.——Dr. A. C. Poole is in Paris.——Dr. Smith Hollins McKim has moved to New York.——H. Barton Jacobs is at Trouville, France.

Scarlet Fever and Diphtheria Increasing.—During the first seven months of this year there were 327 more cases of scarlet fever and 249 more cases of diphtheria than during the corresponding period of last year. The health department claims that this is due to too early release of sick children from quarantine.

Deaths of the Week.—The deaths for the week ended August 22 were 202, a rate of 18.93 per 1,000 per annum. It is notable that cancer comes second on the list of death causes. The following are the principal causes: Consumption, 28; cancer, 15; diarrhea, pneumonia and Bright's disease, each 11; heart disease, 9. Scarlet fever, typhoid fever and diphtheria are prevalent.

MASSACHUSETTS.

Glanders.—Another case of glanders contracted by the owner from his horse is reported from Methuen. It necessitated the amputation of an arm.

Not Proven.—The charge against Dr. J. M. Jones, Bay City, of failure to report a case of contagious disease to the local board of health was not proven, and the defendant was discharged.

Typhoid from Milk.—An epidemic of typhoid fever at Fall River has been traced to the contamination of milk on one route. Apparently the germs entered the milk when the farmer entirely submerged his cans full of milk in a well.

Personal.—Dr. John W. Crawford, Lawrence, is in the Massachusetts General Hospital, seriously ill from septicemia due to an operation wound.——Dr. Thomas B. Shea, Boston, has gone to Europe.——Dr. John Gallagher has been appointed physician to the House of Providence Hospital, Holyoke, vice Dr. William Powers, resigned.

Lowell Water Impure.—The score and more of typhoid fever cases reported in Lowell, Mass., since August 1, are believed to be due to contamination of the drinking water. The city gets its supply from driven wells, but after a large fire recently a check valve failed to work and river water was for a time permitted to enter the city mains.

MICHIGAN.

Personal.—Dr. Frank C. Myers, Kalamazoo, has moved to Spokane, Wash., on account of the ill health of his wife. He has purchased the practice of Dr. John R. Leadsworth.

The Most Dangerous Communicable Diseases.—Including reports by regular observers and others, meningitis was reported present in Michigan during the month of July, 1903, at 5 places; whooping cough at 40 places; diphtheria at 55 places; typhoid fever at 79 places; smallpox at 81 places; measles at

85 places; scarlet fever at 96 places, and consumption at 216 places. Reports from all sources show meningitis reported present at 2 places more; whooping cough at 3 places less; diphtheria at 13 places less; typhoid fever at 14 places more; smallpox at 26 places less; measles at 28 places less; scarlet fever at 13 places less, and consumption at 8 places more, in the month of July, 1903, than in the preceding month.

July Mortality of Michigan.—There were 2,653 deaths reported for July, or 334 more than during the preceding month. The death-rate for July was 12.6 per 1,000 per annum. There were 566 deaths of infants under 1 year, 197 deaths of children from 1 to 4 years, and 711 deaths of persons aged 65 years and over. Important causes of death were as follows: Tuberculosis, 206; typhoid fever, 27; diphtheria, 37; scarlet fever, 13; measles, 12; whooping cough, 38; pneumonia, 82; diarrhea and enteritis, under 2 years, 271; cancer, 138; accidents and violence, 274, including 58 deaths from drowning and 11 deaths from lightning. There were 2 deaths reported from smallpox during the month, and 27 deaths from lockjaw, nearly all of which were due to Fourth of July accidents, caused by the use of toy pistols.

Comparative Prevalence of Disease.—For July, 1903, compared with the preceding month, diarrhea, cholera morbus, intermittent fever, whooping cough, dysentery, cholera infantum and inflammation of brain were more prevalent; and influenza, measles, scarlet fever, pneumonia and meningitis less prevalent. For the same month, compared with the average for July in the ten years, 1893-1902, tonsillitis, scarlet fever, smallpox, diphtheria and inflammation of brain were more than usually prevalent; and neuralgia, diarrhea, consumption, influenza, cholera morbus, intermittent fever, dysentery, remittent fever, inflammation of bowels, cholera infantum, erysipelas and meningitis were less than usually prevalent. Diarrhea, dysentery, cholera infantum and cholera morbus are usually most prevalent during July, August, September and October, but these diseases were from twenty to fifty-seven per cent. less prevalent than usual in the July just passed.

MINNESOTA.

Change of Name.—The Minnesota State Medical Society has filed papers changing its name to Minnesota State Medical Association.

Fire in Medical College.—Damage amounting to about $5,000 was caused by a fire in the basement of the medical department at the state university.

Ames Asks Aid.—Former Mayor Dr. Albert A. Ames, Minneapolis, now under sentence of imprisonment for bribery, has made application for pension on account of injuries received during the Civil War.

Correction.—Dr. Robert F. Lynch, Monticello, writes asking that the error whereby his name appeared in the report of the organization of the Wright County Medical Society as "Albert F." Lynch be corrected. THE JOURNAL printed the name as "Albert F." because it is so given in Polk's Directory, which is, as a rule, correct.

Personal.—Dr. Charles A. Lapierre, Minneapolis, has been seriously ill from an infected wound of the hand.——Dr. John B. Dunn, St. Cloud, has gone to Europe.——Dr. George A. Stevenson, Albert Lea, has returned from a prolonged tour of Europe.—— Dr. Charles H. Norred, Minneapolis, has been appointed surgeon to the Minnesota Soldiers' Home.

NEW JERSEY.

Smallpox in Bridgeton.—Smallpox has again appeared in Bridgeton. The treasury is empty and the city council has refused to give the board of health any more money.

Inspect Trenton Dairies.—The Board of Health of Trenton, acting in conjunction with the State Board of Health, has ordered an inspection of all the dairies of the Trenton milkmen.

Attachment Issued on Hospital.—The real and personal property of the Elizabeth General Hospital has been attached for a long-standing debt of $4,393. The hospital is valued at $100,000. Ex-Governor Foster M. Voorhees is president of the institution.

Enforcement of Child Labor Law.—Chief State Factory Inspector Wood has instructed his deputies strictly to enforce the new child labor law, which goes into effect September 13. The new law makes the employment of children under 14 a misdemeanor, punishable by a fine of $200 or imprisonment for one year.

Anthrax.—A serious epidemic of anthrax among cattle is reported in the vicinity of Lower Alloway. Thirty head were buried on Round Island in one day. The law requires their burial six feet below the surface and the use of a layer of lime. The inoculating process is used on cattle as a preventive measure. The board of health enjoins the citizens to observe the law concerning contagious diseases of cattle.

NEW YORK.

Arrests Incubator Proprietor.—An overzealous member of the New York Society for the Prevention of Cruelty to Children caused the arrest of Dr. Martin A. Cooney, proprietor of the infant incubator at Luna Park, Coney Island, for running a baby farm.

Needs Endowment.—Albany Medical College has appealed to its alumni to provide an endowment fund producing at least $5,000 a year for each department, to solve the problem of supporting the laboratories, which has become a question of paramount importance.

Personal.—Dr. Abram T. Kerr, secretary of the Cornell medical faculty, Ithaca, has been appointed health officer of Ithaca, vice Dr. Edward Hitchcock, Jr., on leave of absence.—— Dr. Carl W. Walser, has been appointed assistant house physician at the Presbyterian Hospital, Manhattan.

Addition to Medical Library.—The medical library in Stimson Hall, Cornell University, Ithaca, has just received an addition in the form of the medical library of the late Dr. Charles E. Van Cleef, a graduate of Cornell, who died in 1896. This gift consists of about 250 volumes of standard medical works.

Buffalo.

Personal.—Dr. Frederick Preiss has returned after an extended tour of Europe.

Disposal of Garbage.—Commissioner Ward has signed the contract with the Buffalo Sanitary Company for collecting and disposing of the city garbage. Work will be begun September 1. The city will pay about $170,000 a year.

Currents and Water Contamination.—A dozen new floats of an improved order have been placed in the lake near Stony Point by the Health Department for the purpose of studying the effects of currents on water contamination. Mr. Fuller, the water expert from New York, is continuing his research experiments on the water supply of Buffalo.

Emergency Hospital Report.—The first annual report of the Emergency Hospital of the Sisters of Charity shows that during the year the number of patients admitted to the hospital was 1,190; of that number 1,038 were discharged and 100 died. The number of patients who were treated without fee was 330, those who paid partially were 630, and those who settled in full were 235. The total number of cases treated in the dispensary was 2,479 and the total number of old cases treated in the dispensary was 9,688. The total number of consultations was 12,167.

New York City.

Cabot Resigns.—Dr. Follen Cabot, Jr., assistant bacteriologist of the Department of Health, in charge of rabies research, resigned, August 12.

New York Eye and Ear Infirmary.—By the generosity of the late William C. Schermerhorn an ophthalmic ward was added to the hospital, and now his daughters have provided for the furnishing and surgical equipment of this portion of the hospital.

Inspectors Under Fire.—Out of ten medical inspectors of Brooklyn against whom charges were preferred, eight were found guilty. Three of these were dismissed, four were fined and one was censured. The charge in each case was that the inspector permitted houses to be disinfected before the determination of the contagious disease.

Herzog Rating Stands.—The protest of Dr. Alfred W. Herzog as regards his rating on examination has been overruled by the Municipal Civil Service Commission, which has decided that taking into consideration the ratings received by others who tried the examination, there was nothing remarkable in the rating that had been given to him.

Work Lags on Woman's Hospital.—For some time past the work at the Woman's Hospital has been at a standstill save for the use of a very small temporary pavilion. It is expected, however, that work will be begun very soon on the new edifice, which is to be six stories in height, with lecture hall, chapel, private and ordinary wards and a new and thoroughly modern equipment, and which is expected to cost $610,000.

PENNSYLVANIA.

Rabies.—Two persons at West Chester and ten children at Punxsutawney are said to have been bitten by dogs proved by postmortem examination to have been affected by rabies.

Typhoid in Pittsburg.—Between July 1 and August 8 300 cases of typhoid fever were reported to the Pittsburg Board of Health, with 52 deaths, a death rate of 17.33 per cent. On August 10, 17 new cases were reported.

Oleomargarin for Poorhouse Inmates.—In the case of the Commonwealth against the County Commissioners and other officials of the Jefferson County poorhouse at Brookville on the charge of furnishing the inmates of the institution oleomargarin instead of butter, the defendants admitted the charge. The defense raises two questions to be settled by the court: First, the oleomargarin law is unconstitutional; second, a county poorhouse is not such a charitable institution as is contemplated by the law. A penalty of $1,000 fine or two years' imprisonment, or both, is provided for violation of the law.

Philadelphia.

Toy Pistol Prosecutions.—District Attorney Bell has begun prosecution of dealers who are charged with having sold toy pistols to minors. Several dealers, at a recent preliminary hearing, entered bail to answer at court. It is said to be the purpose of the prosecution to bring the cases to trial at an early date.

Isolation Hospital Nearly Under Roof.—The mayor and other city officials recently visited the Macalester farm, the site for the projected new municipal hospital. Sites for the buildings and plans for beautifying the grounds were approved. The one-story structure for the smallpox department with accommodations for about 200 patients, is nearly under roof, and is expected to be ready for the reception of patients next winter.

Impure Beer.—Several retail liquor dealers and bottlers have recently been arraigned before a magistrate charged by Dairy and Food Commissioner Warren with selling adulterated beer. The affidavits allege that the samples of beer analyzed contained salicylic acid. It is the avowed purpose to strike at the manufacturer of impure products, and it is probable that the retailers will simply be held as witnesses against the brewers.

To Succeed Welch.—Dr. B. Franklin Royer, chief resident physician of the Jefferson Medical College Hospital, has been appointed chief resident physician of the Municipal Hospital, and will begin his new duties September 1. Dr. William M. Welch, who for twenty-five years has been physician-in-charge of the Municipal Hospital, is made consulting physician to the institution. The office of chief resident physician is a new one, and city councils will be asked to create the position by ordinance.

The Ball-Park Catastrophe.—By the crowding of a balcony overhanging the street at the Philadelphia Ball Park on August 8, several hundred people were precipitated to the pavement. Many were very seriously injured, and ten deaths or more resulted. Several of the up-town hospitals were taxed to their utmost to care for the victims. The coroner and other city officials are taking great pains to fix the responsibility for the accident. It is claimed that timbers originally strong had become rotten through exposure for several years, but the whole matter remains to be settled by official investigation.

GENERAL.

Plague in Peru.—Bubonic plague has caused 24 cases and 15 deaths at Pacasmayo, Peru.

Yellow Fever in Mexico.—Alarm has been felt along the Texas border over the occurrence of several cases of yellow fever in Mexico. Quarantine was established against a few cities, but no serious outbreak has occurred.

Great Britain to Check Immigration.—The royal commission on alien immigration recommends regulations similar in many respects to those of the United States. No educational qualification is proposed. Provision is made for deportation at the expense of the ship company that brought the immigrant in case of proof of his undesirability during two years after arrival.

FOREIGN.

Personal.—Dr. Peter Martin Keller, Huntley, New Zealand, has been appointed surgeon-captain in the New Zealand volunteer medical staff.

Sixtieth Professional Anniversary.—The Nestor of German alienists, Dr. Laehr of Zehlendorf near Berlin, has recently celebrated the sixtieth anniversary of his entering on the practice of medicine. He was born in 1820, and was one of the founders of the German Psychiatric Society.

Von Leyden's Jubilee.—Prof. E. von Leyden of Berlin entered on his professional career, August 11, fifty years ago, and the anniversary was celebrated by his friends with much ceremony this year. The Berlin University, as is customary, renewed his diploma "with honor," and also those of Drs. A. Hildebrandt, L. Rosenthal and F. Polland, who graduated with him.

Charlatan Ads in the Berlin Papers.—Some time ago we announced that the publisher of three prominent daily papers in Berlin had applied to the local medical association for expert opinion on the medical ads in his papers, stating that he wished to accept only those that met the approval of the profession. The medical society complied with his request with pleased alacrity, but the charlatan ads are beginning to appear once more in his papers, as our German exchanges note in sorrow—possibly the medical experts are away on their vacation, one sarcastically suggests.

Scarcity of Hospital Accommodations at Moscow.—The city of Moscow has numerous hospitals and money has been lavishly given by philanthropic capitalists for model medical schools and clinics. It is with some surprise that we read that in June 1,457 sick persons were turned away from the city hospitals and 207 from the others on account of lack of accommodations. July 1 the total number of patients in the city hospitals was 4,722, and in the others 1,020. As the number of the insane is constantly increasing and the present institutions are already overcrowded, the municipal authorities have recently made arrangements to place the quiet insane patients in private houses.

Scientific Devotion of Roux and Metchnikoff.—Roux and Metchnikoff have succeeded, they believe, in inoculating a chimpanzee with syphilis. It is accepted as such by Fournier, although he remarks that the appearance of secondary symptoms would be still more conclusive. The researches are to be continued, and as the Institut Pasteur, with which these scientists are connected, is not rich enough to supply the necessary material in the line of chimpanzees and other monkeys required for the purpose, Roux and Metchnikoff propose to devote to it the prizes recently bestowed on them. As our readers will remember, Roux received the Osiris $20,000 prize and Metchnikoff a $1,000 prize from the Institute.

The Preventive Circular.—THE JOURNAL has mentioned the German "warning circular" to be distributed by physicians among their patients. It is written by Professors Erb, C. Fränkel and Jadassohn and the text is published in full in the *Allg. Med. Ct.-Ztg.* for August 8, 1903. It contains nine paragraphs, the whole about as long as a column and a half of THE JOURNAL. It states: 1, that sexual abstinence is not injurious to health as a rule; 2, describes the symptoms and contagiousness of gonorrhea and syphilis and their consequences; 3, warns against promiscuous intercourse, and that women may be capable of transmitting the disease without being aware of their infected condition; 4, warns that the most insignificant wound or lesion on the genitals may be the entering point for infection, and should be submitted at once to the examination of some qualified physician, avoiding quacks, nature healers, etc. "The danger of venereal diseases, which is frequently under-estimated and frequently over-estimated, may be materially diminished by appropriate medical assistance. Nearly every case can be completely cured, although a long time may elapse before this can be accomplished." 5. The subject himself is unable to tell when he is cured, and the qualified physician has to examine him again and again through months and years in order to follow the course of the disease and apply treatment at the proper moment. In a separate paragraph the subject is warned that he must not allow himself to be deterred from mercurial treatment by the ads of charlatans. "The general opinion of the medical profession is that it is necessary, extraordinarily effective, and can never do harm in the hands of a trained physician." "He who suspends treatment without the advice of a physician, has only himself to blame if symptoms recur, which may not be until after a long interval. Such neglect is not only liable to injure himself, but may be the means of injuring others." The German code is then cited to show that a penalty of three years' imprisonment or $250 fine may be imposed for personal injury or injury to health, while the penalty is much more severe if the loss of an eye or other important member results from the injury. The danger of infecting others during the stage of incubation is

also emphasized, and the subject is warned always to inform his medical attendants later that he has had a venereal disease. In conclusion the circular cautions that there are no absolutely reliable protecting measures against venereal infection, but at the same time advises the use of some such measure, in regard to which the physician is alone competent to pass judgment. The danger of infection while under the influence of alcohol is commented on, and the extragenital sources of infection. Intimate contact with unknown persons or common use of pipes, razors, dishes, etc., is warned against, and fondling children whose medical antecedents are unknown. All persons with a venereal disease are cautioned in regard to the hygienic measures to prevent extragenital infection of others, as they may spread the disease by lack of care in this respect. These circulars are to be distributed to all physicians of Germany through the mediation of the county and local medical associations or the officials of the sickness insurance societies.

Correspondence.

Notes from Manchester and London.

LONDON, July, 1903.

To the Editor:—Mr. George A. Wright, well known through his excellent work on early excision of the hip, is still active at the Royal Infirmary, Manchester, where the writer found him at work in the operating room. His first case was one of infraorbital neuralgia, which he treated by exposing the nerve and injecting into it a 2 per cent. solution of osmic acid; the results of this method, which does not abolish nerve function, are said to be very gratifying. In a case of extensive sinuses of the ilium, the opening was enlarged, and the sinus curetted and flushed out with turpentine, an application of which Mr. Wright thinks very highly. It is not painful, and does not interfere with primary union. The third operation was the opening of a pulmonary abscess in a young child.

In conversation Mr. Wright said he was treating young children with congenital clubfoot with appropriate tarsectomies, and the double cases with astragalectomy. In tuberculous knees erosion, through a transverse incision dividing the patella, is the favorite treatment. The patella is afterward stitched with silk. Hip cases are treated at first with the Thomas splint, but if after ten or twelve months they have not done well the joint is excised. Mr. Wright does not favor the manual replacement of congenitally dislocated hips on the ground that the acetabulum is usually too defective to assure a permanent result.

Although Mr. Wright has resigned his connection with the Children's Hospital at Pendlebury, about four miles from Manchester, he very kindly gave me a card to the house surgeon, who was most courteous. The Pendlebury Hospital is modern, and is built in separate wards, one story high, connected by roomy corridors, and with ample space between. Thus light and ventilation are abundantly provided, and the children are easily moved on mattresses into the open air. Each ward has 26 beds, and two separate beds for the isolation of contagious diseases. The treatment of hip, knee and talipes cases was much practiced by Mr. Wright. Of two cases of laminectomy for Pott's paraplegia one had improved considerably, the other only as to control of sphincters. One case of double luxation of the hip was in a frame holding the thighs abducted, but although it was four months after the operation, the patient was still in bed. Knockknees are corrected after supracondylar division of the femur with the Adams saw, but plaster is not applied until a week or ten days later. Tendon grafting for paralytic deformities was frequently practiced.

On reaching London the writer found but little activity at the Royal Orthopedic and National Orthopedic hospitals, as it was the dull season. Each has about 60 beds and a large out-patient service; it is gratifying to learn that there is a good prospect for the consolidation of the two institutions, and for the erection of a large, modern hospital. Some of the surgeons connected with these institutions are very conservative, confining their operative work to tenotomies and bloodless manipulations.

It was, however, the writer's privilege to see Mr. E. M. Little correct a paralytic varus with the Thomas wrench, and also do an improved Phelps operation in another case. The modification consisted in making a v-shaped incision, with the base at the outer border of the sole, enabling the operator to cover over the deep wound.

Of all the London surgeons the writer was most anxious to see Mr. Bernard Roth, who is, perhaps, the foremost representative of the Purdy gymnastic treatment of lateral curvature of the spine. Mr. Roth demonstrated his work in London, and very kindly invited the writer to accompany him to Brighton, about an hour's run, where he also has a large class. The patients ranged in age from early childhood to advanced life; all were treated by exercises alone, and each in turn passed under the hands of Mr. Roth, who was at all times the center of inspiration. The system is peculiar, as the work is entirely individual, and yet many patients are handled in a short space of time. The exercises, mainly resistive flexion, extension, and rotation of the trunk, and horizontal exercises for trunk and legs are extremely simple, but so planned as to develop the weakened muscles very rapidly. Mr. Roth's practice is to give symmetrical exercises daily for a month, then to ascertain the "key-note" position and to include exercises in this position for two months longer; after this the patient practices certain exercises at home, reporting at long intervals; no supports are used. Careful notes and patterns are taken of each patient, so that progress can be tested. Mr. Roth, like Mr. Jones and other eminent authorities, freely admits that the rotation is incurable, but pain, which he finds in the majority of cases, is relieved, health and vigor imparted, the progress of the affection checked, and in favorable cases the posture improved. With the help of several assistants, Mr. Roth is able to treat some thirty cases in about two hours. Between each set of exercises, the patients rest on benches at the sides of the room; they seem to heartily enjoy the work, a point which Mr. Roth considers essential to success. The strength developed in a short time in the muscles of the back and waist is surprising, but far more wonderful are the energy and skill which Mr. Roth puts into his work, his general control of the class, and the directness of his methods. Practically the only apparatus used are the vertical ladder, the high bench, and the padded bar, but with his hands and these simple appliances Mr. Roth obtains speedy and enviable results.

HENRY LING TAYLOR.

(New York address, 125 W. 58th Street.)

The Alleged Cure for Lockjaw.

CHICAGO, Aug. 25, 1903.

To the Editor:—Certain publicity given by the lay press to a case of tetanus recently treated by me, and an editorial in THE JOURNAL last week, make the following statement necessary:

In the first place, I disclaim any pretention to the discovery of a specific cure for tetanus or for any other disease. However, during the past year I have made a study of the diuretic effects of certain salt solutions when injected directly into the circulation in mammals (rabbits), and the power of such diuretic saline solutions to eliminate soluble toxins from the body. To prove the theory I chose tetanus toxin, which I found could be eliminated from the body, at least in part, after sufficient time had elapsed for it to set up its characteristic symptoms. I tested this on a number of animals (each animal being controlled) with a large per cent. of positive results.

In the case of tetanus in question I simply carried over my animal experiments to a human being, and in this particular case with positive results. The case was a boy, 11 years old, who had sustained a lacerated wound of the foot. Eight days after the injury tetanus began to develop. The symptoms did not progress very rapidly. I was called to see the boy nine days after the first appearance of the disease, and while the symptoms were pronounced, all the voluntary muscles being in a state of tetanus, I gave the opinion that the disease would probably assume a chronic character. At any rate, I consid-

ered the patient had about as good a chance to recover without as with the intervention of physicians. Four days afterward (the thirteenth day of the disease) I was called again, and found the boy manifesting alarming symptoms of acute tetanus. His whole voluntary muscular system was in a complete tetanus and convulsions were following each other in rapid succession. Pulse 150 and temperature 105. Bowels had been moving involuntarily. In two and a half hours I injected into the circulation 600 c.c. of a solution containing NaCl, Na_2SO_4, $Na_3C_6H_5O_7$, and $CaCl_2$ in the proportions given below. During the injection the pulse fell to 104 and remained so until the following afternoon, when the pulse began to increase and soon reached 140, and convulsions began to threaten the life of the patient again. The treatment was repeated with a like good result, the pulse this time reaching 98. A large excretion of urine followed. The next day the pulse went up to 130, and the treatment was repeated, when the pulse fell to 94 and the temperature to 100 (per rectum). No further treatment seemed necessary, and the boy has steadily improved ever since, now the tenth day after the last treatment.

When I began the treatment the symptoms indicated a fatal termination, and that before many hours, but as I have had opportunity to see at least one case recover from seemingly an acute infection without any treatment at all I must refrain from drawing any conclusions from this case.

Further, let me say, such a treatment of disease partakes of none of the elements of the specific antitoxin treatment of disease. It is simply a cell stimulant, combined with diuresis. I can say, at least, it is a safe treatment and if carried out slowly is certainly beneficial, but not a specific.

The following is the solution:

M/8 NaCl	500 c.c.
M/8 $Na_2SO_4+10H_2O$	250 c.c.
M/24 $Na_3C_6H_5O_7+5\frac{1}{2}H_2O$	245 c.c.
M/8 $CaCl_2+6H_2O$	5 c.c.
	1000 c.c.

This being interpreted gives the following:

℞. Sodii chlorid	7	3125
Sodii sulph	10	06+
Sodii citrat	3	364+
Calcii chlorid	0	136+
Aquæ	1000	00

To get the best effects the injection should proceed very slowly, not more than 3 c.c. per minute.

While as yet nothing is claimed for the treatment, I hope before long to be in possession of sufficient clinical data to either prove or disprove its efficiency, and until such a test is made and published in a *professional* manner, no confidence is to be placed in the treatment. S. A. MATTHEWS, M.D.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

NAUHEIM BATHS.

MANSFIELD, LA., Aug. 3, 1903.

To the Editor:—Please let me know the composition, mode of application and indications for the artificial Nauheim baths in chronic heart disease. H. J. PARSONS.

ANS.—The composition of the Nauheim baths is largely chlorid of sodium and chlorid of calcium, at least they are the more active constituents. There are a number of springs that are utilized and the baths are also given artificially to some extent. Bezley Thorne says that the Schott brothers have insisted that similar, if not identical, effects can be obtained from artificial baths, prepared to imitate the Nauheim waters in their principal mineral ingredients. "Thus it is recommended that the treatment should commence with a 1 per cent. solution of chlorid of sodium, and that the strength should be gradually raised to 2 or 3 per cent. For increasing the cutaneous excitation, chlorid of calcium is the salt to be relied on. The initial strength of the bath, with regard to that ingredient, should be 0.2 per cent., approximately that of No. 7 spring, and, by increasing additions, it may be raised to 0.3 per cent., that is, to about the strength of No. 12 spring, and eventually to 0.5 per cent. Such varying degrees of concentration may be obtained by the proportional use of the crystallized Nauheim bath salt, of the mother-lye or of calcium chlorid, and of Mediterranean sea residue, which also contains chlorid of sodium and of calcium in the proportions necessary for the preparations of initial baths, together with traces of bromids and iodids.

"For the production of carbonic acid effervescence the action of hydrochloric acid on bicarbonate of soda may be relied on. As a state of chemical purity is not required by the circumstances of the case, the articles of commerce are sufficient for the purpose. Two ways of employing the reagents are suggested, the one calculated to induce slow and gradual, the other rapid and almost immediate effervescence. In the case of the first, the various salts, including the requisite proportion of bicarbonate of soda, having been dissolved, a bottle containing the acid is laid at the bottom of the bath and, the stopper having been withdrawn, it is moved about from time to time. The bath will be ready for use in two or three hours. For the more rapid production of effervescence the stopper of the bottle containing the acid is loosened but retained in position, the bottle having then been inverted and lowered until its mouth is just below the surface of the water, the stopper is withdrawn and the bottle is moved about so as to diffuse a layer of acid as uniformly as possible over the surface of the bath. By this means the bath will be prepared in about five minutes. It will be useful to employ baths of three degrees of effervescence:

Mild—½ lb. $NaHCO_3$ to ¾ lb. HCl (25 per cent.).

Medium—1 lb. $NaHCO_3$ to 1½ lbs. HCl.

Strong (Sprudel strength)—2 lbs. $NaHCO_3$ to 3 lbs. HCl.

"Except in the case of porcelain baths it is desirable to ensure a slight excess of alkali in order to prevent corrosion."

The indications are, in general, feeble heart action and circulation, lack of vasomotor tone, dilatation. Consult a good work on therapeutics.

DUTY OF PHYSICIAN IN EMERGENCY CASE.

MINNESOTA, Aug. 22, 1903.

To the Editor:—A few days ago a friend of the writer was hurt in a gasolene launch at a lake resort, three miles from town. The injury consisted in a flesh wound in the upper part of leg, five or six inches long. The writer, being the family physician, was telephoned for, but, due to unavoidable detention, could not get there for three-quarters of an hour. On the arrival of the writer he found that another physician, who is on his vacation and who lives in St. Louis, had been called in, as he was living in the next house. This physician had shaved the leg and put on an antiseptic cotton dressing, but, having no instruments, he had to await my arrival. When I arrived, bringing the necessary instruments, bandages, etc., the emergency physician, without any explanation, helped himself to the instruments and proceeded to sew up the wound. This he did without protest from me, as I thought it best not to raise any trouble at the time. An explanation between the two physicians happened later; the St. Louis physician maintaining that, inasmuch as he had started the work, he had a right to help himself to the other physician's instruments and finish; the family physician, however, claims that, inasmuch as the physician was from St. Louis and outside his jurisdiction, had no instruments, and as he had done all he could, he should immediately have withdrawn from the case, leaving it to the family physician to finish. Who is right? L. G.

ANS.—The Principles of Medical Ethics, Article iv, Section 6, is explicit: "When a physician is called to an urgent case, because the family attendant is not at hand, unless assistance in consultation is desired, the former should resign the care of the patient immediately on the arrival of the family physician."

WHOLLY SMOKE.

Dr. C. J. Gose, Kinderhook, Ill., sends us the following, with the instruction, if it is not fit for publication, to convert it into smoke:

I've heard of lies, great big lies,
And told a few myself,
But of all the lies I ever heard,
This knocks me off the shelf.

A doctor man once told me this,
(And I thought him very fractious),
"In my time I've been behind
Three weeks in my practice."

EXCLUSION OF PHYSICIAN'S OFFICE FROM RESIDENCE DISTRICT.

ST. LOUIS, Aug. 21, 1903.

To the Editor:—Has the attempt ever been made to apply the restrictions which apply to a trade or business against a physician desiring to regularly practice the learned profession of medicine in a restricted residence district? W. D.

ANS.—Do you mean to ask: Can a physician be prevented from opening an office anywhere he wishes to? Leaving out of account saloons, gambling houses or other businesses that may be decided to be nuisances (for example, a rendering plant), we know of no *legal restriction* that can exclude a business shop from any district, except the *agreement* in lease or deed or otherwise that property is not to be used for certain specified purposes. Since the owner

of property is not a servant of the public, he may refuse to sell or lease to undesirable persons. This has excluded physicians because they were going to open offices, which action was undesired by lessors.

MENTAL STATUS IN PHTHISIS—INFORMATION WANTED.

OKLAHOMA CITY, O. T., Aug. 21, 1903.

To the Editor:—Recognizing THE JOURNAL of the American Medical Association as the principal organ of leading physicians of America, and desiring more authority on the following subject, I wish to ask two simple questions, and will thank in advance as many readers as will kindly state their own experience and cite such authorities as they may have read on the subject, giving chapter and page: 1. Are persons who are afflicted with pulmonary consumption prone to attribute their physical weakness to some other cause than consumption? 2. Are persons so afflicted more easily turned against their dearest friends by designing people than when in a normal state of health? J. L. SHORT.

Marriages.

HERBERT E. MARKWORT, M.D., to Miss Helen Husemeyer, both of St. Louis, August 8.

JOHN JACOB WUERTH, M.D., to Miss Georgia Marion Pitkin, both of Chicago, August 18.

CHARLES D. SHELTON, M.D., to Miss Jessie Ferguson, both of Bloomfield, Iowa, August 5.

ABRAHAM GIVEN SHORTLE, M.D., to Miss Alice Stanley Mitchell, both of Chicago, August 18.

NELSON MERRILL, M.D., Marshalltown, Iowa, to Miss Flora Belle McMahon of Cissna Park, Ill., August 5.

EDWIN A. DAVIS, M.D., Mammoth, W. Va., to Miss May Langhorne Johnson of St. Louis, at Hardine, near Elkins, W. Va., August 6.

Deaths.

George D. Cross, M.D. University of Pennsylvania, Philadelphia, 1889, a leading ophthalmologist of Pennsylvania, assistant surgeon Wills Eye Hospital, and ophthalmologist St. Clement's Hospital, Philadelphia, a member of the American Medical Association, Delaware County Medical Society, Philadelphia Medical Society and the Medical Society of the State of Pennsylvania, died at his home in Chester, Pa., August 8, after an illness of eighteen months, aged 51.

Patrick Carter **Lodge, M.D.** University of Vermont, Burlington, 1899, whose name was dropped from the roll of the Waterbury (Conn.) Medical Association, after an acrimonious discussion regarding the nature and treatment of smallpox, shot himself in the head, at Waterbury, August 5, and died a few hours later, aged nearly 60.

Francis Marion **Powell, M.D.** Starling Medical College, Columbus, Ohio, 1875, for more than twenty years superintendent of the Iowa Institution for Feeble-Minded Children, Glenwood, a member of the Iowa State Medical Society, died at Mercy Hospital, Chicago, August 16, after an operation for gallstones, aged 55.

Josiah D. **Cotton, M.D.** University of Louisville, Ky., 1847, surgeon of the Ninety-Second Ohio Volunteer Infantry in the Civil War, a member of the American Medical Association, and one of the oldest members of the Ohio State Medical Society, died at his home in Marietta, Ohio, August 6, after a short illness, aged 81.

Clarence **John Garitee, M.D.** University of Pennsylvania, Philadelphia, 1894, an active member of the Philadelphia Pathological Society, Philadelphia Pediatric Society and Philadelphia County Medical Society, died at his home in Philadelphia, August 10, from heart disease, following septicemia, aged 31.

Samuel Bryant **Potter, M.D.** Jefferson Medical College, Philadelphia, 1854, a member of the American Medical Association, and for several years vice-president of the North Central Ohio Medical Society, died at his home in Fredericktown, Ohio, August 5, from stricture of the bowel, aged 74.

George W. **Rolerfort, M.D.** Leonard Medical School, Raleigh, N. C., 1889, a member of the American Medical Association, Medical Society of the State of New Jersey, and Essex County Medical Society, died suddenly from apoplexy at his home in Newark, August 6, aged 43.

L. W. Bacon, M.D. Medical School of Maine, Bowdoin College, Brunswick, who retired from practice at Portage, Wis., in 1887, died at the home of his daughters in Minneapolis, August 14, from heart disease, aged 96.

Charles W. Piper, M.D. University of Michigan, Ann Arbor, 1884, of Wurtsboro, N. Y., a member of the New York State Medical Association, died at the New York Hospital from septicemia due to an autopsy wound, August 10, aged 46.

Joseph Muir Corbett, M.B., Ch.B., Glasgow, 1897, surgeon of the Anchor Line steamer *Astoria*, was drowned in the Hudson River, and his body was found August 7. His death is believed to have been accidental.

Burwell G. Abernathy, M.D. College of Physicians and Surgeons, Baltimore, 1880, one of the organizers of the Jefferson County (Ala.) Medical Society, died at his home in Tampa, Fla., July 30, after a long illness.

George Johnston, M.D. Jefferson Medical College, Philadelphia, who retired from active practice about ten years ago, died at his home in Connellsville, Pa., August 9, aged 84.

Moses Bruckheimer, M.D. National Medical College, Washington, D. C., 1868, died at his home in Washington, D. C., August 7, after a short illness, aged 63.

Robert Morrison Rhea, M.D. Jefferson Medical College, Philadelphia, 1868, died at his home in Knoxville, Tenn., from acute gastritis, August 11, aged 60.

T. J. I. Pattillo, M.D., of Lee County, Ga., died at the home of his son in Macon, August 6, aged 71.

Miscellany.

Microbes Suggested in the Year 1726.—Dr. John Knott, Dublin, Ireland, writing in appreciation of "Medical Discoveries by the Non-Medical," which appeared in THE JOURNAL, May 30, 1903, says he ventures "to hope that it may interest some medical readers in the glorious land of freedom which has so long proved the refuge of the Irish race, to peruse some remarks—published in Dublin in 1726—sixty-two years before Samuel Foote's play appeared. The writer was (afterward Sir) Edward Barry, M.D. The following quotation forms the concluding paper of this author's work: 'A Treatise on a Consumption of the Lungs':"

Thus I have endeavored after the most plain, and rational manner, to account for the various Origine, and Progress of this Distemper, through its different Stages: And without forming any deceiving *Hypothesis*, have shewn how a Collection of *purulent Matter* in the *Lungs*, can only proceed from *previous Obstructions* of the *Vessels*, or a *Solution* of their *Continuity:* There is no Disease perhaps which rightly to explain, requires a more universal Knowledge of the *Animal Oeconomy;* and which hitherto has been described after a more imperfect, confused Manner. In this *Treatise* I have proposed rather to lay down a right Account of this *Distemper*, than to examine the errors of others: But, however, I cannot well avoid mentioning the Author of a late *Hypothesis* which some may be more inclined to believe, since no less than *ocular Demonstration* is offered to confirm the truth of it. This Person takes Notice, that *Ulcers* in the *Lungs* when narrowly viewed with *Microscopes*, are covered with several *Insects*, and from thence concludes that they take their first Origine from such *Animalcules*, which being inspired with the Air, fix their Situation on the *Lungs*, and erode and ulcerate the *Vessels:* And from the same irregular Way of Reasoning, these *Animalcules* have been by others supposed the Cause of several Distempers, and particularly such as are *contagious:* But these Appearances may be easily accounted for, as the unavoidable Effects, not the Causes of these Diseases: For it is certain, that there is almost an infinite Number and Variety of such *Animalcules* perpetually floating in the Air, whose chief Business consists in searching out a Place where they may find Nourishment, and a proper Situation for themselves and their young: But every living Part of a human Body has a perpetual Pulsation, which tho' imperceptible to our Eyes, is sufficiently strong to give the most uneasy Motion to those *Animalcules* so minutely small; and entirely prevent them from fixing there for any time: But as there is no Circulation in any part that is ulcerated, the Inconvenience of this Pulsation immediately ceases, and the *purulent Matter* sends forth perpetual Steams, fit to nourish them; and by being viscid and adhesive, makes their *Nidus* so secure, that the Motion of the *Vessels* under the ulcerated Part is not strong enough to dislodge them. After the same Manner, the Blasts of Trees and Plants, may be more rationally accounted for, than by bringing small *Animalcules* and their Eggs so many hundred Leagues to produce these Alterations. For there is a Circulation of *Humours* through every Part of Plants, and Trees, and in their aerial Tubes a more remarkable Pulsation, which is sufficiently strong to prevent these *Animalcules* (perhaps more minute than such as are observed on *Animal Bodies*) from having a fixed and safe Situation there. But whenever any particular Wind, or Alteration of the Air, by either giving a sudden contraction to their *tender Vessels*, or a *Viscidity* to their *Juices*, produces a *Stagnation*, and thence a *Gangrene*, either in any particular Part, or in the whole, such *Animalcules* will quickly secure this quiet State, and Nourishment.

State Boards of Registration.

Tennessee Report.—Dr. T. J. Happel, secretary of the State Board of Medical Examiners of Tennessee, reports the written examination held at Memphis, Nashville and Knoxville, March 30 and 31, 1903. (The examinations are held in the three divisions of the state on the same days. The board meets as soon as convenient and passes on the papers.) The number of subjects examined in was 8; total number of questions, 64; percentage required to pass, 75; the total number examined was 150, of whom 88 were graduates; the number passed was 120, of whom 78 were graduates. This shows that 32 per cent. of the non-graduates failed, while only 11 per cent. of the graduates failed. The graduates are listed below.

PASSED.

Candidate.	Sch. of Pract.	College.	Year Grad.	Per Cent.
1	R.	Vanderbilt University	1903	80
3	R.	Vanderbilt University	1903	86
4	R.	Vanderbilt University	1903	87
6	R.	Vanderbilt University	1903	80
10	R.	Vanderbilt University	1903	85
34	R.	Vanderbilt University	1903	86
35	R.	Vanderbilt University	1903	87
36	R.	Vanderbilt University	1903	83
37	R.	Vanderbilt University	1903	85
39	R.	Vanderbilt University	1903	90
45	R.	Vanderbilt University	1903	75
56	R.	Vanderbilt University	1898	90
2	R.	Tulane University	1901	88
5	R.	Memphis Hospital Medical College	1897	85
113	R.	Memphis Hospital Medical College	1898	75
205	R.	Memphis Hospital Medical College	1903	85
206	R.	Memphis Hospital Medical College	1903	86
207	R.	Memphis Hospital Medical College	1903	81
210	R.	Memphis Hospital Medical College	1903	78
201	R.	Memphis Hospital Medical College	1903	75
220	R.	Memphis Hospital Medical College	1903	91
221	R.	Memphis Hospital Medical College	1903	78
225	R.	Memphis Hospital Medical College	1903	93
226	R.	Memphis Hospital Medical College	1903	86
227	R.	Memphis Hospital Medical College	1903	94
229	R.	Memphis Hospital Medical College	1903	85
230	R.	Memphis Hospital Medical College	1903	92
234	R.	Memphis Hospital Medical College	1903	81
239	R.	Memphis Hospital Medical College	1903	76
243	R.	Memphis Hospital Medical College	1903	78
245	R.	Memphis Hospital Medical College	1903	80
246	R.	Memphis Hospital Medical College	1903	91
216	R.	Memphis Hospital Medical College	1903	77
250	R.	Memphis Hospital Medical College	1903	78
252	R.	Memphis Hospital Medical College	1903	88
7	R.	Hospital Medical College, Louisville	1903	86
134	R.	Hospital Medical College, Louisville, Ky.	1897	75
200	R.	Hospital Medical College, Louisville, Ky.	1901	78
13	R.	University of Nashville	1903	77
17	R.	University of Nashville	1903	84
24	R.	University of Nashville	1903	78
202	R.	University of Nashville	1901	82
14	R.	University of the South, Sewanee	1900	78
25	R.	University of Tennessee	1903	80
26	R.	University of Tennessee	1903	91
27	R.	University of Tennessee	1903	85
28	R.	University of Tennessee	1903	75
30	R.	University of Tennessee	1903	88
44	R.	University of Tennessee	1900	75
59	R.	University of Tennessee	1903	90
111	R.	University of Maryland	1901	92
116	R.	University of Maryland	1899	80
117	R.	University of Michigan	1902	93
130	R.	University of Illinois	1902	75
131	R.	University of Illinois	1902	83
214	R.	University of Virginia	1894	94
255	R.	University of Virginia	1897	98
22	E.	Lincoln Medical College, Lincoln, Neb.	1902	75
32	R.	American Medical Missionary College	1899	85
46	R.	Americal Medical Missionary College	1902	91
38	R.	Medico-Chirurgical College, Philadelphia	1894	85
109	R.	Medico-Chirurgical College, Philadelphia	1901	83
47	R.	Meharry Medical College	1903	81
48	R.	Meharry Medical College	1903	75
55	R.	Ohio Medical College	1902	78
107	R.	Tennessee Medical College	1903	75
108	R.	Tennessee Medical College	1903	82
110	R.	Tennessee Medical College	1903	88
119	R.	Tennessee Medical College	1903	82
121	R.	Tennessee Medical College	1903	90
126	R.	Tennessee Medical College	1903	89
129	R.	Tennessee Medical College	1903	75
112	R.	Georgetown Medical College	1893	95
115	R.	Atlanta Medical College	1893	76
127	R.	Alabama Medical College, Mobile	1887	81
124	R.	Birmingham Medical College, Alabama	1898	79
218	R.	Louisville Medical College	1903	82
251	R.	College of Phys. and Surgs., Baltimore	1884	75

FAILED.

11	E.	Georgia Eclectic College	1903	48
49	R.	University of Nashville	1903	67
50	(?)	Medical Institute, Marion, Ind.	1896	39
54	R.	College of Phys. and Surgs., Baltimore	1876	70
203	(?)	Central School of Medicine and Science	1901	74
215	R.	Medical College of Ohio	1903	66
224	R.	Memphis Hospital Medical College	1903	73
254	R.	Memphis Hospital Medical College	1903	70

Applicants 231 and 232 were rejected for violating the obligation in giving and receiving assistance.

Medical Organization.

MEDICAL ORGANIZATION METHODS AND BENEFITS.

J. N. M'CORMACK, M.D.

In the report of the Committee on Organization made to the American Medical Association at the St. Paul Session in 1901, and in the valuable paper by Dr. Simmons along the same lines later, particular attention was devoted to the unorganized and almost chaotic condition of the profession of this country as a whole, in spite of the existence of so many national, semi-national and state societies of more or less excellence, to the evils resulting and inseparable therefrom, and to the urgent necessity of a uniform, systematic and universal reorganization as the only possible remedy for these conditions.

That the importance of all this was realized, and that the profession was at last ready and ripe for reform was shown by the prompt and unanimous acceptance of the entire plan of reorganization proposed for the Association itself, and the continuance of the committee with instructions to prepare uniform constitutions and by-laws to be recommended for adoption by all state and county societies. This was still more forcibly shown by the adoption of these in thirty-one states within fifteen months after they were promulgated at the Saratoga meeting, while in several states favorable reports from committees appointed to consider the subject only await the annual meetings of their respective state societies to ensure their adoption. It seems now only a question of time until every state in the Union will have accepted them, and be using the same methods to secure the same results.

If this were all, the bare statement of the foregoing facts would indicate a degree of widespread interest and activity in the medical profession of this country without a parallel in its history. But this is not all. Within all of the states which reorganized in 1902 the acceptance of the new plan was systematically followed up by the organization of county societies, and an increase in total membership and interest quite as remarkable. This interest and enthusiasm was so great that not only the councilors and other officers especially selected for the purpose took up the work with commendable zeal, but that volunteer efforts in the same direction were and are being effectively made by many others who caught the infection.

PERMANENCE.

As a natural result of this general awakening, requests have come from more thoughtful workers of every quarter for information as to how these efforts and this enthusiasm may be so intelligently directed as to make certain that the reform so auspiciously begun may be made both thorough and permanent. It is feared by many that the rapid growth of the movement, and the zeal and enthusiasm responsible for this, may themselves become sources of danger, because of the reaction and apathy likely to follow. A very proper fear is also expressed that the impression will go out that the reform will be complete and the work over as soon as all the states have accepted the new plan, and societies have been organized in every county, and especially that the latter will be left to languish and die as soon as the first sentiment which created them subsides. In the light of history, as well as in the very nature of the problems involved, these fears are well grounded and are entitled to the most careful consideration.

PROVISION AGAINST DANGERS.

That the Association fully appreciated all of these dangers in advance, and made every possible provision against them will be readily shown by such a study of the various constitutions and by-laws of the entire system, from the county societies up to the American Medical Association, as every one should give them who desires to take an intelligent part in this work. In fact, it will be found that under the new order of things one of the chief functions of the higher organizations, within their respective spheres, is to organize, maintain and form a bond of union between the county societies. One of their principal uses and powers will be, through the well-devised delegate system, to collect and concentrate the influence

and represent the opinion of a united profession, as developed and expressed in the county societies, on all the great questions relating to the educational and scientific advancement of the profession itself, or for the protection and promotion of the public health interests of the whole people. Through the same system they may be made equally efficient in radiating and diffusing the spirit of scientific investigation, and the generous emulation and mutual respect and forbearance engendered by the contact of the most advanced and liberal members gathered at the annual meetings, back through the system of delegates and organizations to the most remote society. Through such action and reaction of enlightening and ennobling influences, and the systematic supervision provided through the councilors for every county in every state, aided by THE JOURNAL of the Association and the journals or bulletins in each state, sent free to all members, all possible safeguards are made for the permanency and efficiency of these organizations in theory. With such incentives, instruction and machinery, each state association must deal with the problem within its own jurisdiction on the broad yet painstaking lines which will now be considered.

ESSENTIAL FEATURES IN STATE WORK.

While provision is made for councilor district societies and other details which may grow in importance in the future, there are five essential features in the plan on which both the immediate success and the permanency of the work of each state association depends. Named in the order of their importance they are: 1. The county society, as the unit of organization, and the foundation of, and the door to, everything above it. 2. A council, selected from the profession at large, to represent and act for the Association under well-defined restrictions in the interval of the annual meetings, and whose individual members are charged with the organization, supervision and well-being of the county societies within their respective jurisdictions. 3. A house of delegates, composed of a limited number of specially selected representatives from the county societies, as the business body of the association. To it is committed the duty of fostering in every legitimate way the scientific, legislative and material interests of the profession at the annual meetings. 4. The general meeting, made up of all the members of all the county societies who will attend, which can devote its entire time and attention to the reading and discussion of papers, and reports of scientific research and investigation. 5. A card index register for each county, and for the state, showing at a glance the status and antecedents of each physician of the jurisdiction, reputable and disreputable, including his name and address, and furnishing reliable information as a basis for an official medical directory for each state, by counties, and for the United States. To this list there should probably be added a bulletin or journal published under the auspices of the association, and sent free to all members, as a means of constant communication between the county societies, and between them and the councilors and other officials, as well as for the early publication and wide distribution of the transactions.

COUNTY SOCIETIES.

All of these features or departments are so interdependent as to be essential to the complete and permanent organization contemplated, but it will be perceived at once that the county society is made the bed-rock on which the entire superstructure rests; that it is made the chief function of the individual councilors, provided for every district in every state, to see that these are organized for and kept alive to the best interests of the members composing them, and of the profession as a whole, that the influence of every officer and agency in the entire system is focused on and directed to the same end, and that all these are to be continued until every physician of every county in every state, who can be made worthy of it, is brought under the educational and elevating influence of some county medical society. Such an organization of the profession as this is ideal, but is believed to be entirely possible, if this possibility and the necessity for it is once fully appreciated by the controlling influences in each state.

WHY SO DIFFICULT TO MAINTAIN.

For obvious reasons it has always been easy to induce leading men from widely separated sections to attend and keep up the interest in the national, the state, and even in the district medical societies, but the problems to be faced in making the frequent meetings of local or county organizations, composed of those who have, or at least think they have, competing personal and professional interests, sufficiently interesting and harmonious to secure the requisite attendance, month after month and year after year, are far different. In reality all their interests are mutual. In the best and broadest sense what benefits or hurts one benefits or hurts all. To convince them that this is true is the problem now before the profession. It has been done to a degree in a few states, and in some counties in all the states, and after a large experience the writer feels assured that it is possible everywhere. "What men have done other men can do." The difficulties are on the surface and will disappear in the face of a full recognition of their nature, and of a kind but frank and unsparing discussion.

TROUBLES OF LOCAL ORIGIN.

Widespread as are these difficulties, extending from ocean to ocean, and baneful as have been their effects on every interest of the profession, when reduced to the last analysis it will be found that all of them, large and small, in city or country, are directly traceable to rivalry and jealousy between local doctors who are in each other's way or between competing schools in the same city. A clear understanding of the truth of this proposition is essential to the purpose now in hand. Physicians are the most agreeable men in every community except in their relations with their rivals. They are often like Damon and Pythias with those from a distant city or community, while barely on speaking terms with equally good physicians of their own town or neighborhood. As these conditions largely create and emphasize the necessity for universal local organization, and at the same time, paradoxical as it may appear, constitute the chief obstacle to its accomplishment, they are entitled to a detailed consideration not hitherto accorded them.

RESPONSIBILITY OF MEDICAL COLLEGES.

If we will consider the influence these conditions exert continuously on a young man taking up the study of medicine, from his entrance in school up to his graduation, follow him through his early experience as a practitioner, and then make the application general, we fairly epitomize evils as widely prevalent as they are deplorable. Matriculating in one of our average low-grade schools, three, four or five in a city where there is only room or need for one, all probably without endowment, and run as private commercial enterprises, with the fierce struggle for patronage and existence inseparable from such conditions, he is surrounded more or less constantly throughout his college career, the formative period of his professional life, by an atmosphere of exaggeration, misrepresentation and falsehood, as to other schools and teachers, neither worse nor better than his own. Without an hour's training as to the ethics of his profession, or business methods, or even a suggestion as to the duty or value of society membership, our young graduate leaves his alma mater probably conscious that he is none too well qualified for the duties of his high calling, but anxious to learn, and especially craving the practical knowledge which he believes will come with experience, and from association with his professional brethren.

(To be continued.)

Coleman County (Texas) Medical Society.

This society has been organized according to the plan of the American Medical Association. Dr. Newton Long, Santa Anna, was elected president; Dr. Samuel A. Lowrie, Silver Valley, vice-president, and Dr. James G. Pope, Coleman, secretary and treasurer.

Allamakee County (Iowa) Medical Society.

Physicians of Allamakee County met in Lansing, August 4, and formed a county medical society with the following officers: Dr. L. C. Myers, Rossville, president; Dr. E. J. Gable,

New Albin, vice-president, and Dr. John Huecker, Lansing, secretary and treasurer.

Adair-Russell County (Ky.) Medical Society.

Dr. James G. Carpenter, Stanford, Ky., councilor for the Seventh District, has organized this society in accordance with the suggestions of the American Medical Association, with 15 charter members. The following officers were elected: Dr. Uriah L. Taylor, Columbia, president; Dr. William Blair, Glen's Fork, vice-president; Dr. James R. Walford, Montpelier, treasurer; Dr. James S. Rowe, Jamestown, secretary, and Drs. R. D. Havions, Russell Springs, Joel B. Scholl, Jabez, and W. R. Grissom, Columbia, censors.

Barron-Gates-Polk County (Wis.) Medical Society.

At a meeting of the Barron County Medical Society at Barron, August 13, the organization was disbanded and an inter-county society formed embracing the counties of Barron, Gates and Polk, with the following officers: President, Dr. Olaf M. Sattre, Rice Lake; vice-presidents, Drs. Clark C. Post, Barron; W. F. O'Connor, Tony, and Herbert B. Commett, Amery; state delegate, Dr. Gentz Perry, Amery; censors, Drs. Axel Em Hedback, Barron; Charles R. Hudgel, Ladysmith, and Abraham L. Wells, Clear Lake. The new society will be auxiliary to the state and national societies.

Societies.

American Electro-Therapeutic Association.—The thirteenth annual meeting will be held at the Hotel Windsor, Atlantic City, N. J., September 22, 23 and 24.

Medical Society of Virginia.—The thirty-fourth annual meeting will be held in Roanoke, September 15, 16 and 17, under the presidency of Dr. John N. Upshur. Richmond.

Russell Springs (Ky.) Medical Society.—At the annual meeting recently held Dr. Joel B. Scholl, Jabez, was elected president; Dr. Lewis F. Hammonds, Dunnville, vice-president, and Dr. L. D. Hammond, Irvine's Store, secretary and treasurer. The next meeting will be held in Columbia, in August, 1904. The feature of the meeting was an address by the president on "Professional Union," as a result of which the Adair-Russell County Medical Society was organized.

American Pharmaceutical Association.—At the fifty-first annual meeting held at Mackinac Island, Mich., August 4, the following officers were elected: President, Lewis C. Hopp, Cleveland; vice-presidents, W. C. Alpers, New York; A. R. Rohring, U. S. M. and P. H. Service, and Dr. Otto F. Claus, St. Louis; treasurer, S. A. Shephard, Boston; general secretary, Charles Casperi, Jr., Baltimore; reporter on the progress of pharmacy, C. Louis Diehl, Louisville, Ky.; council, Leo Eliel, South Bend, Ind.; George F. Payne, Atlanta, Ga.; E. G. Eberle, Dallas, Tex.

BRITISH MEDICAL ASSOCIATION.

The Seventy-first Annual Meeting, held at Swansea, July 28, 1903.

(By Our Special Representative.)

(*Continued from page 512.*)

On Wednesday and Thursday, July 29 and 30, the representative meeting considered the lengthy report of the council, which, as one item, reported the continued prosperity of the association. At the close of 1902, owing to deaths and arrears of subscriptions, the actual membership showed a certain shrinkage, but signs are not lacking to prove that the new constitution will tend to make the association a more powerful factor in the influencing of legislation for the good of the community and the profession at large, so much so that it is hoped the day is not far distant when every qualified practitioner will feel it imperative to seek membership in the association.

The Imperial Vaccination League.

The council, in view of possible legislation, realizes the great importance of guiding public opinion as to the absolute necessity of vaccination and revaccination, as the only means of stamping out the terrible scourge of smallpox, and has therefore voted the sum of $500 toward the funds of the league to further its campaign in this direction.

The Journal.

The *British Medical Journal* has continued to maintain its place among the leading medical journals of the world. The rapid progress of medicine and the more widespread interest yearly taken by members in clinical and scientific questions, making increasing calls on its space, had led the council from time to time to increase the number of pages in the weekly issue, and at the beginning of 1903 some further space was economically obtained by lengthening the columns, thus allowing more matter on each page. Special arrangements have been made also for the immediate publication of preliminary reports from the scientific workers whose researchers are assisted by the association, through its scientific grants committee. Such preliminary reports, while they will not interfere with the subsequent publication of full details in the most appropriate place, present the double advantage of affording an opportunity to the workers of establishing priority of observation, and to the members of the association of becoming promptly acquainted with the results of the latest scientific investigations and of learning the manner in which the money voted for the advancement of science is utilized.

Scientific Grants Committee.

This committee has made certain amendments of the provisions under which scholarships and grants are given. It is felt that in the future scholars should devote the whole of their time to the research work they undertake, and that scholars should not hold in addition any scholarship worth more than $250. Further, it is considered that the work both of scholars and grantees should be subject to periodical inspection, and that applicants for assistance should produce recommendations as to their fitness for undertaking any proposed research.

Special Chloroform Committee.

This committee has held six meetings since its reappointment. Further work has been carried out with the view of ascertaining the best means of estimating chloroform vapor in air, and reports on this subject have been received from Dr. A. D. Waller. The methods of estimating chloroform in liquids—for example, water, blood, etc.—were also tested, and Mr. A. Vernon Harcourt, F.R.S., presented a report on this matter. At the instance of Dr. Waller, Mr. Wells has investigated this subject by means of vacuum experiments.

Various inhalers for giving chloroform have been studied with the view of ascertaining the percentage dose in air of chloroform vapor delivered under known conditions. A report dealing with the purely practical question of the clinical use of such inhalers was presented by Dr. Dudley Buxton. The committee examined the actual use of certain inhalers, and will report on them.

The special chloroform committee was originally appointed in view of the very regrettable number of cases in which chloroform administration terminated fatally. The original terms of reference were as follows: "To investigate methods of quantitatively determining the presence of chloroform in the air and in the living body"; the ultimate object laid before the council of the British Medical Association by Sir Victor Horsley being to determine, if possible, what is the minimal dose of the drug which would secure an adequate anesthesia for operations, and at the same time not endanger life.

The committee is unanimously of the opinion that the effect of chloroform varies in proportion with the amount of chloroform in the mixture of air and chloroform administered, and with the rate and depth of respiration.

As regards individual differences, there is no doubt that different subjects present varying degrees of susceptibility to chloroform, as notoriously occurs in the case of alcohol; but the committee considers that the vague expression, "idiosyncrasy," ought not to be accepted in explanation of a fatal accident if the method of administration involves considerable fluctuations of the quantity of chloroform absorbed per unit of time.

A considerable amount of time has thus been devoted to the question of dosage, and it is believed that quantities of chloroform varying between 0.5 per cent. and 2 per cent. are sufficient for the induction and the maintenance of narcosis. It will be seen from Dr. Dudley Buxton's and Mr. Tyrrell's observations that for ordinary purposes about 1 per cent. of choloroform vapor is sufficient for maintenance of narcosis.

Any apparatus for continuous administration should afford means of quickly and easily augmenting and diminishing the proportion of chloroform in the mixture of chloroform and air inspired.

The committee continued its examination of the quantitative determination of chloroform in liquids. After trying various plans Mr. Harcourt found that the best results were obtained by using a saturated solution of urea in water, and mixing this with an equal volume of the blood, according to a plan suggested by Mr. Ramsden. By employing this method in two cases the blood remained fluid during the heating and more than 90 per cent. of the chloroform was accounted for.

SUMMARY OF INVESTIGATIONS INTO METHODS.

As regards most accurate methods for determination of the amount of chloroform in air and liquids the committee now is in a position to recommend the following as trustworthy:

(*a*) In air. (1) The combustion method by incandescent wire (Vernon Harcourt's method). (2) Combustion by magnesia or lime.

The committee also further considered the employment of Dr. Waller's oil absorption method and the determination of chloroform in air by the estimation of the density of the mixture.

(*b*) In liquids. Displacement of the chloroform from the liquid by heating it for several hours while air bubbles through and subsequent estimation of the chloroform vapor thus given off.

PROPOSED FURTHER INVESTIGATIONS.

The committee has postponed the estimation of chloroform in the solid tissues and to continue its endeavor to obtain an apparatus which shall deliver a known percentage of chloroform vapor. Further, the committee hopes to determine during the coming year the physiologic effects of the lower percentages.

Finally, by the same plan of research, it may be expected that the important question of accumulation or non-accumulation of chloroform in the tissues during constant chloroform absorption which is under investigation will receive elucidation.

Report of Committee on the Vaccination Acts.

The vaccination committee recommended the following:

1. That revaccination be made compulsory by law, and that it be performed between the ages of 10 and 13 years.
2. That both primary vaccination and revaccination be subject to the same provisions for conscientious objection as in the present vaccination act, but that the procedure for exemption should be more strictly defined in any future legislation.
3. That the vaccination act should be administered directly by a department of the local government board.
4. That in future vaccination legislation no certificate of successful vaccination should be accepted unless it contains a statement as to the number and area of the vesicles produced.
5. That all lymph shall be supplied by government, or by private establishments under government supervision and guarantee.
6. That every private practitioner furnishing vaccination authority with certificates of successful and efficient vaccination, satisfying a standard fixed by the local government board, should receive a suitable fee for each such certificate.

The question of vaccination and revaccination, as well as a compulsory act relating thereto, elicited considerable vigorous discussion in the representative meeting, the matter being finally referred back to the council.

We present herewith abstracts of some of the more important papers read before the various sections of the association.

In the surgical section an interesting paper was presented by Mr. G. H. Makins, London, entitled:

Practical Experience Regarding the Most Satisfactory Methods of Performing Intra-Abdominal Anastomosis.

The following is from the author's abstract of his paper:

A.—WHICH VARIETY OF ANASTOMOSIS IS THE SAFER AND TO BE GENERALLY PREFERRED?

(*a*) Axial (or end-to-end). Gives ideal result both from physiological or cosmetic point of view—one line of suture only with corresponding limitation of area of possible leakage nutrition—cicatricial contraction—diaphragm formation.

(*b*) Lateral anastomosis. Natural method—plane peritoneal surface obtainable; size of communication at the command of surgeon; no danger of diaphragm formation; may be made remote from field of operation.

Three lines of suture needed; risk of leakage from closed ends.

(*c*) Lateral implantation. No risk of diaphragm; two lines of suture only; iso-peristalsis assured.

RESULTS OF AXIAL AND LATERAL UNION RESPECTIVELY.

Axial. St. Thomas' statistics for all causes, 53 per cent. mortality. Littlewood, eleven enterectomies for carcinoma of large bowel, 27.27 per cent. mortality. One stitch failure in eleven.

Von Eiselsberg twelve resections for intussusception followed by axial ileo-colostomy, 25 per cent. mortality.

Lateral safer than axial; more suitable for large intestine; reasons. St. Thomas' recent statistics, 30.7 per cent. mortality.

Schloffer ileo-colostomy, ten cases, mortality 30 per cent. Ileo-colostomy with resection, eighteen cases, with 44 per cent. mortality. Roskoschny, thirty-four short circuit operations, 20.5 per cent. mortality. St. Thomas' resections for carcinoma of large bowel, twenty; axial, twelve, with 50 per cent. mortality and five fecal fistulæ; eight lateral unions, with 25 per cent. mortality. Fuchsig sixteen lateral anastomoses, with 37.5 per cent. mortality; twenty-four axial unions, with 54.16 per cent. mortality.

Gastro-enterostomy general mortality from all causes does not exceed 30 to 40 per cent., and stitch failures much fewer; thus, Schloffer, seventy cases, with no stitch failure; St. Thomas', forty-two cases, with two stitch failures; Mayo Robson, one hundred and three cases, with no stitch failure.

B.—GENERAL CONSIDERATION. AFFECTING ANY METHOD OF OPERATION.

Preliminary preparation; treatment of peritoneal cavity; temporary treatment of opened bowel, with the object of preventing infection; clamps; omental grafts; drainage; after-treatment.

C.—WHAT METHOD OF UNION SHOULD BE CHOSEN?

Requirements of any method of suture. Security; even coaptation of a sufficient peritoneal surface; rapidity in application; avoidance of the production of a diaphragm; protection as far as possible of the structures of the bowel wall itself from infection; the avoidance of any complete perforation of the bowel wall.

(*a*) Suture aided by some means of mechanical support. Mayo Robson's bobbin taken as a type.

(*b*) Coaptation by mechanical devices. Murphy's button taken as a type; advantages; objections to method. Results obtained by Dr. Murphy, 863 operations, with 261 deaths, a mortality of 30.24 per cent.

The author quoted a mass of statistics on all his points.

Vaccination Acts and Smallpox Prevention.

In the section on state medicine the chairman, Dr. John McVail, Glasgow, in his address discussed this subject. He pointed out that medical men had no final responsibility for the action or inaction of the government. Physicians have much less occasion than the public to worry over parliamentary delay in the prevention of smallpox. To medical men the value of vaccination was not a matter of opinion, but of knowledge. He urged that when smallpox threatened the country the local government board should have power to issue special regulations. A matter of great importance was that of the spread of disease by tramps, and it was a question whether in the case of tramps compulsory vaccination should not be made absolute, but at any rate if any regulations were enforced they should be applicable to all tramps in the suspected area, and should not merely apply to "contact" cases. The speaker expressed the view that it was quite possible that the legislature would refuse to exclude vagrants from the operation of the exemption clause. In such a case the only suggested alternative was that tramps should be compulsorily detained. He pleaded that the amplest powers of inspection should be allowed in regard to places infected by tramps, and also of tramps themselves. This, it might be urged, would be an interference with the liberty of the subject, but it would also be most useful in the detection of smallpox. The speaker urged that in cases of outbreak local sanitary authorities should have the fullest powers; at the same time they must not forget that the object of legislation was not to punish antivaccinators, but to promote vaccination. In conclusion he urged the importance of revaccination, and stated that the opponents of vaccination had been allowed to do far too much, while the solid body of opinion in the country that favored vaccination had done far too little.

DISCUSSION.

DR. DRYSDALE urged that medical men should do more to inculcate the doctrine that vaccination did prevent smallpox, and also that revaccination was undoubtedly necessary. In support of the latter the speaker pointed to Germany, where epidemics of smallpox were unknown—an immunity which

was due to the fact that children were vaccinated in infancy and again before attaining the age of twelve. The speaker expressed the view that it would be a great advantage if such a custom became habitual in Great Britain.

DR. MOLE, Gower, said he thought the medical profession were agreed that four vaccination marks were more effective than a smaller number. Some mothers considered such a number too severe, and instead of going to a public vaccinator took their children to a private practitioner, who made one mark and perhaps charged one shilling for it. The speaker expressed the opinion that every private practitioner should be supplied with lymph free in the same way as public vaccinators.

DR. T. GARRETT HORDER, Cardiff, urged that the powers now possessed by the boards of guardians should be transferred to the sanitary authorities. If this was done he felt convinced that it would tend to the juvenile population being more effectively protected against the ravages of smallpox. Everyone was aware that a large number of people escaped vaccination, and it was only in the event of an outbreak that these children were discovered. During the year 1901 5,206 births were registered in the borough of Cardiff, of which 503 children died unvaccinated, while of the remainder 3,597, or 76.1 per cent., were successfully vaccinated; 69 certificates of conscientious objections were granted, equal to 1.4 per cent. of births, and 933, or 19.7, were unaccounted for. Referring to the relation of the public vaccination officer to the private practitioner, he would like to point out that the public vaccinators had nothing to do with the framing either of the act or the local government board regulations. For his own part he had always advocated the system of making public vaccinators officials whose sole duty would be to look after the vaccination of the infants residing in the districts to which they are appointed. The speaker strongly urged that all children should be operated on before leaving school. The best and surest way of discovering unvaccinated children was to visit all schools periodically, and have the children's arms inspected. If after several visits it was found that a considerable number were not vaccinated a law should be made providing that no child should be admitted into an elementary school who had not been vaccinated. Any parent who refused to have his child vaccinated or to obtain a certificate of exemption ought to be prosecuted. In conclusion Dr. Horder hinted that private practitioners were apt sometimes to keep their lymph too long a time before making use of it.

DR. JONES MORRIS, Portmadoc, gave some interesting facts regarding his experiences as a public vaccinator in North Wales, and complained of the way in which public vaccinators were often treated by the guardians. In his view, there was no need for the general practitioner to feel envious of the public vaccinator.

DR. EBENEZER DAVIES, Swansea, referred to the recent smallpox outbreak in Swansea. There were some 200 cases, 33 of which proved fatal. They had not much difficulty in the town in regard to active opposition to revaccination, but during the outbreak they had a good deal of difficulty with regard to "contacts," concerning which they could not very well complain. The outbreak emphasized the need of revaccination of persons before they reached the wage-earning age. When they asked the "contacts" to be revaccinated they complained that they could not afford to risk being incapacitated from work by a bad arm. In conclusion the speaker stated that they had 14,000 people revaccinated in Swansea during the outbreak, and not one of these took the disease.

DR. MORRIS, Neath, said he should like to see taken up the question of prevention of smallpox in connection with tramps and common lodging-houses. He thought that the time had come when the government should take more active measures in dealing with the tramp nuisance. They ought to have tramps under a system of passports.

REVACCINATION RESOLUTION.

Ultimately two resolutions were passed. The first, proposed by the chairman, pressed on the council the importance of bringing before members of parliament throughout the country, by means of local deputations and representations, the necessity of further legislation for vaccination and revaccination. The second resolution, proposed by Dr. Drysdale, was as follows:

Considering that of late years there have occurred, in several cities of the United Kingdom, several epidemics of smallpox, while in Germany, since 1875, such epidemics have been unheard of on account of the fact that infants are vaccinated and that children are revaccinated before their twelfth year, this meeting is of opinion that all children should be vaccinated in infancy and revaccinated at the age of 10 or 12.

(To be continued.)

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns without allusion to inquirer.]

Alkalies in Atony of the Stomach.

In this department, August 5, page 387, an outline of the treatment of hyperchlorhydria is quoted from A. A. Jones. We state: "He advises against the administration of alkalies before meals unless there is co-existing atony." A correspondent asks: "Suppose there is atony, what would be the good effects obtained by giving alkalies before meals?" We think our correspondent misconstrues Dr. Jones. We infer that Dr. Jones means simply that if atony exists, alkalies will do less or no harm. We do not understand that Dr. Jones advises alkalies even in atonic cases.

Hemorrhoids.

Preissman, in *Rev. Francaise de Med. et de Chir.*, recommends the following combination containing potassium iodid, glycerin and iodin in the treatment of hemorrhoids:

℞. Pot. iodidi ..... gr. xxx 2
Iodi (pure) ..... gr. iii 20
Glycerini ..... ℥i 30

M. Ft. solutio. Sig.: Thoroughly cleanse the parts and apply locally on absorbent cotton. The solution in some cases is applied in greater strength as follows:

℞. Potass. iodidi ..... gr. lxxv 5
Iodi (pure) ..... gr. xv-℥ss 1.-2
Glycerini ..... ℥i 30

M. Sig.: Apply locally.

Acute X-Ray Burns.

Burns produced by the *x*-ray are becoming more and more a grave subject for consideration, as the numbers increase, both on account of the severity of the burns in some cases and the stubbornness to treatment even in the mild cases. Even those who have become most familiar with the *x*-ray have sustained such severe burns as to disfigure them for life.

M. F. Engman, in *Inter-State Med Jour.*, has had occasion to treat several cases of this character, all of which were of the second degree or milder. Infection and ulceration were not present, the chief indications for treatment being the severe itching, to assist repair and to keep the surface aseptic. The following combination was used by him as a dressing, which seemed to be admirably suited to the cases:

℞. Acidi borici ..... ℥iss 45
Zinci oxidi
Amyli
Bismuthi subnit.
Olei olivæ, āā ..... ℥i 30
Aquæ calcis
Lanolini, āā ..... ℥iii 90
Aquæ rosæ ..... ℥iss 45

M. Sig.: Apply locally to the affected areas on gauze.

The powder should be rubbed up in a mortar with the lanolin. The olive oil and lime water are well mixed and slowly added to the bismuth and lanolin mixture. The rose water should be added last and a creamy paste is the result. One or 2 per cent. of carbolic acid may be added if the pruritus is excessive.

It should be applied on several thicknesses of gauze over which a sheet of gutta percha is placed to prevent evaporation. This paste is cooling to the parts on account of the amount of water present.

Round Worms (Ascarides).

The following outline of treatment is recommended by Pollard in *Med. Record* in the removal of round worms:

℞. Olei chenop. anthel. 3i 4
Ext. spigeliæ et sennæ flu. .....℥ss 15
Santonini .....gr. viii 50
Pulv. acaciæ 3i 4
Syr. rhei arom. .....℥i 30

M. Sig.: Shake and take one teaspoonful an hour before each meal. After the last dose the following should be taken:

℞. Olei terebinthinæ .....gtt. x 65
Olei ricini .....℥ss 15

M. Sig.: To be taken at one dose.

To children four or five years of age the following combinations are of service in the removal of round worms:

℞. Ext. spigeliæ flu.
Ext. sennæ flu.
Syr. simplicis, āā.....℥ss 15

M. Sig.: One teaspoonful night and morning; or:

℞. Ext. spigeliæ flu. .....℥ss 15
Santonini .....gr. v 30
Ext. sennæ flu. .....℥ss 15

M. Sig.: One teaspoonful twice a day; or:

Hydrarg. chloridi mitis .....gr. iss 09
Santonini .....gr. ii 12
Sacchari lactis.....gr. xv 1

M. Ft. chartula. Sig.: To be given in honey, at one dose to a child three years old or over.

The following combination is sometimes recommended in the form of an enema in the treatment of ascarides:

℞. Olei cajuputi .....m. xx 1 30
Magnesiæ levis.....gr. x 65
Mucilaginis 3iv 15

M. Sig.: At one dose in the form of an enema; or:

℞. Liquoris calcis .....℥iv 120
Decoct. altheaæ .....℥i 30

M. Sig.: As an enema.

Dipsomania.

The following combination is recommended by Mann in *Med. Record* in the treatment of dipsomania:

℞. Quininæ sulph.
Zinci oxidi, āā.....gr. ii 12
Strych. sulph. .....gr. 1/40 0015
Acidi arsenosi .....gr. 1/100 0006
Pulv. capsici .....gr. ii 12

M. Ft. pilula No. i. Sig.: One such pill three times a day.

Copper Arsenite in Enteric Diseases.

Haslam, according to an abstract in *St. Louis Courier of Med.*, ascribes beneficial qualities to the arsenite of copper in diseases of the intestinal tract. He recommends it in typhoid fever, giving it in doses of gr. 1/100 (.0006) every hour. He believes, by the administration of this preparation, that the tongue and mouth show improvement, and that the disease is shortened a few days.

In the ordinary diarrheas he advises the following combination:

℞. Cup. arseniti .....gr. 1/100 0006
Acidi tannici .....gr. 1/20 003
Pulv. opii .....gr. 1/40 0015
Pulv. camphoræ 1/40 0015
Pulv. cretæ comp. .....gr. i 06

M. Ft. capsula No. i. Sig.: One such every three or four hours.

Painful Menstruation.

W. L. Downing, in *Med. Fortnightly*, dwells at length on the pathology and symptoms of disturbed and painful menstruation. Dysmenorrhea, according to the author, may be due either to a neuralgia of the uterus or ovaries, or may be brought about by some mechanical obstruction due to flexion or version of the uterus.

In the neuralgic variety due to uterine irritability cimicifuga is said to produce the most excellent results and to give speedy relief, given as follows:

℞. Tincturæ cimicifugæ .....℥i 30

Sig.: Ten to thirty drops in hot water every hour until relieved; then every three or four hours.

If the pain is due to ovarian irritability pulsatilla is recommended, given in five-drop doses, in hot water, every hour until relieved. These preparations may be begun one or two days previous to the usual time for menstruation.

If mechanical obstruction is the cause due to pathologic changes, preparations must be used, which are anodyne, sedative and antispasmodic in character. In these cases he recommends viburnum prunifolium given in hot water before meals, a few days previous to the attack and administered as often as every hour during the attack. This preparation should be continued three times a day for several weeks.

The bowels must be well regulated by the aid of saline laxatives or a combination of podophyllin and leptandrin, of each gr. 1/4 (.015), is recommended.

Glycerin vaginal tampons applied twice or three times a week are of value in relieving the pelvic congestion and giving comfort to the patient.

A combination containing 10 to 20 per cent. of ichthyol in glycerin is of even greater service applied locally on tampon. He also emphasizes the importance of the vaginal douche in relieving the soreness and tenderness due to cervical ulceration, endometritis, metritis, ovaritis, etc. Two or three gallons of water as hot as can be borne by the patient should be used at night and continued for a considerable length of time. Cervical dilatation must be resorted to, previous to menstruation if narrowing of the internal os be present, and flexions corrected, if possible, when present as a causative factor, by proper supports. If polypi block up the outlet from the uterus, dilatation must be carried out and the polypus snared off.

Furuncle.

The employment of a solution of iodin in acetone is recommended by Gallois and Courcon in *Bul. Gen. de Ther.*, in the abortive treatment of furuncles. Acetone, it is said, will hold three or four times as much iodin in solution as will alcohol, and consequently is more effective. The following combination is used:

℞. Iodi (metallic) 3i 4
Acetone 3iiss 10

M. Ft. solutio. Sig.: Paint the affected area once or twice daily.

In many cases, it is asserted, boils may be aborted by applying the solution early.

Empyroform in Diseases of the Skin.

This preparation, which is a combination of tar and formaldehyd has been used successfully by Neisser, according to the *Ther. de Gegenwart*, in the treatment of the different forms of eczema. It may be used in the form of a paste in five, ten, twenty or fifty per cent. strength combined with zinc or lanolin. The following formula has also been recommended:

℞. Empyroform .....℥ss 15
Talci venet.
Glycerini
Aquæ destil.
Spts. vini, āā.....3iiss 10

M. Sig.: Shake well and apply locally to the affected parts.

In the form of a tincture, it may be used as follows:

℞. Empyroform 3i-iiss 4.-10
Spts. chloroformi
Tinct. benzoini, āā.....℥iss 45

M. Sig.: To be painted over the affected areas.

This preparation is said to possess advantages over the ordinary tar preparations in that it is very grateful to the patient, no irritative symptoms arise, no systemic symptoms of intoxication are present. It is a powerful antipruritic and is odorless. The advantages of this new combination over the ordinary tar preparations are supposed to be due in a great measure to the formaldehyd present.

Medicolegal.

Care Required in Removal of Pauper in Distress.—The Supreme Judicial Court of Maine holds, in the case of Merrill vs. Bassett, that the care to be used in removing a person in distress from one town to another under the pauper law is that care and prudence which a reasonably careful and prudent man would exercise under the circumstances of a like situation. The test by which to determine whether due care and prudence have been exercised by one charged with the duty of removal of a person in distress from one town to another, in ascertaining the ability of the pauper to bear the strain of the journey, is the means employed and effort made to find out, rather than the actual physical condition itself. A day affording proper weather conditions should be selected; the pauper should be furnished with suitable garments to protect her, considering as well her physical condition as also the state of the weather; and suitable conveyance, in a careful and prudent manner, should be provided.

Liability of Railroad in Association for Services.—The Supreme Court of Florida, Division B, holds, in Florida Southern Railroad Company vs. Steen, that, where railroad companies owning and operating their several roads enter into a voluntary association, and a hospital and relief department is formed by the association for the several companies, and such department is operated in connection with the business of each company—employes of each company being required to be members of such department, and to contribute regularly to such department sums deducted from their wages by the company for the privilege of such membership—one of such companies is responsible for the compensation of a physician employed by its employes, in pursuance of the regulations of the department, to treat another employe injured by an explosion in the shops of such company. But a physician employed, in pursuance of the authority conferred by the regulations of the relief and hospital department of a railroad company, to treat an injured employe in an emergency, where the company's surgeon could not be reached, who was employed for no definite period of time, can not recover for services rendered after being notified that his services were no longer needed, as the hospital surgeons were then ready to take charge of the case and properly treat the patient in the company's hospital.

Admissibility of Non-Expert Opinions On Sanity.—In Queenan vs. Territory of Oklahoma, where a non-expert witness, a lawyer who knew the prisoner, charged with murder, quite well, it was ruled, could not state an opinion formed after the killing as to his mental condition at that time, but might state any condition that existed when he saw the prisoner on the day before the killing or any impression that it made on his mind as to the prisoner's condition, the Supreme Court of the United States says that some states exclude such opinions, even when formed at the time. But it is impossible for a witness to reproduce all the minute details which he saw and heard, and most witnesses make but a meager and halting effort. Therefore, in this, as in many other instances, after stating such particulars as he can remember—generally only the more striking facts—an ordinary witness is permitted to sum up the total remembered and unremembered impressions of the senses by stating the opinion which they produced. To allow less may deprive a party of important and valuable evidence that can be got at in no other way. But, on the other hand, to allow more, to let a witness who is not an expert state an opinion on sanity which he has formed after the event, when a case has arisen and become a matter of public discussion, must be justified, if at all, on other grounds. It is unnecessary to lay down the rule that it never can be done, for instance, when the opinion clearly appears to sum up a series of impressions received at different times. It is enough to say that, at least, it should be done with caution and not without special reasons.

Employment by County Physician of Other Physician.—Article 4339 of the Revised Statutes of Texas of 1895 makes it the duty of a county physician to establish, maintain and enforce local quarantine for his county whenever declared by proclamation of the commissioners' court; to furnish supplies, select medical assistants, guards and perform all other duties coincident to a reasonable, economic and consistent quarantine. Article 4340 provides that whenever the commissioners' court of any county has reason to believe that they are threatened with the introduction or dissemination of a dangerous, contagious or infectious disease that can and shall be guarded against by quarantine, they may direct their county physician to declare and maintain said quarantine; to establish, maintain and supply stations or camps for those held in quarantine; to provide hospitals, tents or pest-houses for those sick of contagious and infectious disease; to furnish provisions, medicine and all other things absolutely essential for the comfort of the well and the convalescence of the sick. The county physician shall keep an itemized account of all lawful expenses incurred by local quarantine and his county shall assume and pay them as other claims against the county are paid. But, in the case of Barrett vs. Hill County, an action brought by a physician to recover for services rendered to certain smallpox patients under an alleged employment for the purpose by the county physician, the Court of Civil Appeals of Texas holds that the county physician had no authority to make a contract binding on the county, unless the commissioners' court had declared quarantine. It says that the articles mentioned clearly indicate the purpose not to authorize the county physician to incur liability on behalf of the county in such cases except when quarantine has been declared by the commissioners' court. This limitation on his authority was doubtless prompted by a desire to guard the county against extravagance in these epidemics, which, at best, are expensive enough; and to place all expenditures under the supervision of the commissioners' court.

Classification of Physicians—Right to Practice.—District Judge Bryant, delivering the opinion of the United States Circuit Court in the case of August Busch & Co. vs. Webb and others, says that the question to be determined was, can a state take away from a physician his right to practice his profession because he has some other business than that of medicine? He says that he recognizes the right of the legislature to classify physicians, provided the classification is based on sound public policy, and is a reasonable classification. To illustrate: It would be competent for the legislature to say that no physician who has been convicted of a crime should be allowed to practice his profession, or to pass any other reasonable regulation, although, apparently, it might discriminate against persons in the same class or profession. But the judge says that he apprehends that, wherever such classification is made it must be made on the ground of public policy, and for a reason that would attach to the party thus excluded either moral turpitude or incompetency. Where such classification is attempted, and for such reasons, the court will uphold it. But is it true that the legislature can arbitrarily deprive any citizen of his right to pursue his chosen profession, and to its fullest extent, where the discrimination is made solely because he is engaged in some other lawful business which in no wise attaches to him unfitness to practice his profession or moral turpitude? The physician's calling is one that requires long preparation and scientific information not possessed by people generally, entailing on him much expense and years of close study to qualify himself to properly perform his duties as a physician. His calling is of that nature, being one of confidence. He obtains the secrets of his patients as to physical ailments, of whatever character they may be, and therefore the legislature has the power, on grounds of public policy, to guard strenuously the individuals that are allowed to practice medicine, and they have the right to classify and discriminate for good cause, but that does not carry with it the power of arbitrarily discriminating against any member of the medical profession, unless, as so often stated, it is for incompetency or moral turpitude, which public policy requires should be enforced. Here, there was a graduate of a medical school whose

main business was that of postmaster, though he still practiced his profession as a physician, who averred that in such practice, in some cases, it was necessary that his patients should be supplied with alcoholic stimulants. And as applied to these facts, the court holds unconstitutional and void that portion of the local option law, Article 3385 of the Revised Statutes of Texas of 1895, which reads: "Provided, that a physician who does not follow the profession of medicine as his principal and usual calling shall not be authorized to give the prescription provided for in this article."

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

Boston Medical and Surgical Journal.

August 13.

1 *The Present Status of the Surgery of the Prostate Gland. Paul Thorndike.
2 *Preliminary Report of Five Cases of Renal Decapsulation. J. Bapst Blake.
3 *Rupture of the Quadriceps Extensor Femoris Muscle. Halbert G. Stetson.
4 Report of a Case of Aphasia as a Complication of Measles. Warren R. Gilman.

1. **Surgery of the Prostate.**—Thorndike reviews the operations and concludes that no patient should be allowed to suffer for lack of proper treatment. If there is still a place for the catheter many patients can be made comfortable and kept so by its systematic proper use. But all who can not be thus relieved are fit subjects for operation. The time for operation is as soon as the inadequacy of palliative treatment is shown. The operation of choice is always prostatectomy, but only in persons whose general condition make them fit surgical risks. That is rare after 65 years of age. For all others the Bottini operation can be offered as one attended with little risk to life, short convalescence and a good prospect of such a degree of improvement as will obviate the further use of the catheter.

2. **Renal Decapsulation.**—Five cases operated on by Edebohls' method are reported by Blake, who describes his technic and the method of operating. Two of the cases are practically well, though only some months have elapsed since the operation. Two died respectively in six days and six months after the operation, the latter from tuberculosis of the kidney and general tuberculosis, the former from shock and failure to recover from the operation, for which he was in bad shape. One patient has apparently not improved. In the two cases that are apparently cured, traces of albumin and casts are still found. He thinks if the patients would abstain from alcohol entirely it might be followed by the disappearance of albumin and casts in the urine. In other respects they feel as well as ever, and are following their usual occupations.

3. **Rupture of the Quadriceps Extensor Femoris Muscle.**—This accident is considered rare by Stetson, but still it is likely to occur. He thinks the diagnosis should not be difficult if seen early. If rupture is only partial the tendency is toward recovery under mechanical treatment. If complete the operative method would seem to be preferable, other things being equal. The operation consists in cutting down on the separated ends and uniting them either with silkworm gut, kangaroo tendon or silver wire. If the rupture is too close to the patella for suturing the tendon, the upper portion of the tendon should be sutured to the bone itself. He quotes Walker's conclusions that where the joint is apparently not opened and there is not much effusion and the separated ends can be brought together, mechanical means may be favorably considered and ought to bring about a recovery in most cases in from nine to twelve months. Aseptic surgery in suitable cases, however, considering the age and vitality of the patient, may produce better results. Where the separation is greater than one and one-half inches or mechanical treatment has failed, operation is indicated. The element of time in the operative method is an important consideration. A case is reported.

American Medicine, Philadelphia.

August 15.

5 *Rubella. Frederick H. Dillingham.
6 *Enteroptosis: Its Etiology, Symptomatology, Treatment and Prognosis. (To be continued.) Thomas R. Brown.
7 A New Cholera Vaccine and Its Method of Preparation. Richard P. Strong.
8 *What is Epilepsy? J. W. Wherry.
9 *Treatment of Tetanus by Means of Subcutaneous Injections of Carbolic Acid—Baccelli's Method—with a Review of Seventy-five Cases from the Literature. Douglas Symmers.
10 Congenital Cystic Kidney. Walter E. Toble.

5. **Rubella.**—Dillingham's paper is largely a discussion of the diagnosis of rubella, which he says is sometimes very difficult as regards measles, though not so much so with other diseases.

6. **Enteroptosis.**—Brown gives the history of the subject, the anatomic conditions and the literature as regards theories. He specially notices Keith's contribution in the *Lancet* of March 7 and 14, 1903, and his idea of the relation of enteroptosis to the respiratory function. He roughly classes the theories into three groups, as follows:

1. The condition is congenital and is due to an inherent weakness of the tissues which support the abdominal viscera; such factors as clothing, trauma, disease, etc., are not the primary causes of the condition, but simply contributory causes, which bring out and accentuate the inherited tendency; 2, the condition is due to the pressure of clothing, trauma, weakness of abdominal walls, various diseases associated with marked loss of strength or weight, various spinal and thoracic diseases, pregnancy, and parturition, abdominal tumors of various kinds; in other words, a number of conditions, each of which, however, has as its results the weakening of the various visceral supports, due in some cases to pressure, in other cases to adhesions, in other cases to trauma, and in still other cases to a marked diminution in the supporting power of the abdominal walls; 3, that each of the foregoing may be the primary causes of the condition; in other words, that there is both an acquired and a congenital form of enteroptosis. A careful consideration of the various theories evolved and of the cases of enteroptosis described in the literature and met in our own experience should, I think, make us take this third view. As to the exact way in which the ptosis is produced there are a number of possibilities, but the suggestions of Keith in this connection—that is, that the diaphragm is the most important factor in the production of this condition—should receive most careful consideration.

8. **Epilepsy.**—Wherry remarks that epilepsy is a condition of autointoxication spasm resulting in autoasphyxia. It is the result of a vasomotor spasm causing asphyxia of the brain, and so far as the symptom of epilepsy is concerned, is the same as convulsions occurring in asphyxia from other causes, as in hanging. He says epilepsy is a state of autoasphyxiation from a condition of physiologic strangulation or suffocation, except that the cause manifests itself through obstruction to circulation rather than to respiration. The ultimate effect in both cases is depriving the brain of oxygen. He calls this the explanation of epilepsy shorn of all mystery.

9. **Tetanus.**—Baccelli's method of the treatment of tetanus by subcutaneous injections of carbolic acid is taken up by Symmers, who gives to a large extent the history of the treatment of this disorder by this method, reviewing 75 cases. He says that in all suspicious cases and wherever the bacillus of tetanus is known to exist, the areas should be excised or the extremity amputated; if this is impracticable the wound should be cleansed of all foreign substances and saturated with oxygen by means of hydrogen dioxid or the injection of pure oxygen gas; following which it should be flushed with boric acid or saline solution, followed in turn by potassium permanganate or a 5 per cent. solution of iodin trichlorid. No matter what local treatment is employed, if the wound affects an extremity, care should be used in applying permanent carbolic dressings lest gangrene develop. In establishing drainage moist iodin gauze should be employed whenever expedient. Impermeable dressings, dusting powders and caustics should never be used and such wounds should never be incised. A subcutaneous injection of antitetanus serum should be given in every case where development of tetanus is more than a remote possibility. The use of blank cartridges, firecrackers and similar creations should be more stringently regulated. In addition to the general management of the case, the patient should receive subcutaneous injections of carbolic acid along the tracks of the great nerve trunks, the injections being commenced as soon as the diagnosis is made. The body should be further fortified by the administration of the acid by the

mouth or rectum, or both, and it should be pushed to the utmost physiologic limit. Antitetanic serum should be combined with carbolic acid, and if possible given according to the method of Jacob: 5 or 10 c.c. of cerebrospinal fluid is withdrawn by a hollow needle cautiously inserted into the subarachnoid space between the second and third lumbar vertebræ, following which 5 c.c. of antitetanic serum is allowed to flow slowly in under very gentle pressure. The foot of the bed is then elevated and allowed to remain so for at least half an hour. If this can not be done the serum should be administered subcutaneously frequently and in full dose, choosing the track of the great nerve trunks after inserting the needle near or even into the sheath of one or both of the sciatic nerves, keeping the patient under chloroform so that pressure or stretching of the sheath may not increase the number of convulsions or the degree of pain. Intracerebral and subdural paths are valuable only in certain cases and no more certain than the methods described. Intravenous injection is the least rational of all because the antitoxin going directly into the right heart becomes aërated as it passes through the lesser circulation and is deprived of some of its potency. This objection has been applied to subcutaneous injections, but is still more decided as regards the intravenous method. Lastly, that absolute quiet be maintained and the use of carbolic acid, antitetanic serum and the nervous sedatives be continued for several days after the complete subsidence of spasm.

Medical News, New York.

August 15.

11 *A Review of Some of the Recent Literature of the Etiology, Pathology and Prophylaxis of Hydrophobia. Fielding L. Taylor.
12 *Hydrophobia: Symptoms and Diagnosis. William Broaddus Pritchard.
13 *Rabies. H. D. Gill.
14 *Best Methods to Prevent Hydrophobia. Follen Cabot.
15 Adenoids in Relation to Audition and Cerebration. James F. McCaw.
16 *Chronic Leg Ulcers. F. Ward Langstroth.
17 *Some Phases of Cranial Surgery. Gilbert G. Cottam.

11, 12, 13 and 14. **Hydrophobia.**—Taylor gives the general facts as to the etiology, pathology and prophylaxis of this disorder. He notices the pathologic lesions described by Van Gehuchten and Nélis and the advantages of the test. The importance of muzzling dogs and the use of early cauterization are insisted on, and prophylactic inoculations by the Pasteur method and their good results described. He thinks that the Tizzoni and Centanni or the Italian method of serumtherapy promises much.

Pritchard dwells particularly on the hysterical form of hydrophobia and its diagnosis from the genuine type of rabies, and points out the conditions which are more or less constant. The pseudorabies inoculation period is apt to be much shorter or longer than the true disease. Symptoms developing within a day or two after a bite are almost certainly hysterical. The order of sequence is sometimes different. There is no first or second stage, and the patients develop at once the convulsive symptoms and are apt to bark and snap, which is not the case with the genuine form. If the symptoms in any case last over seven or ten days it is almost conclusive of the non-existence of the genuine disease. It should be remembered that the pseudo-form has been fatal. Other conditions that may simulate the disorder are tetanus, though the diagnosis is generally easy, and certain cases of insanity.

Gill describes the symptoms of the furious and dumb forms. He thinks the present regulations are inefficient as regards the prevention of this disease, and criticises the Society for the Prevention of Cruelty to Animals for its practices, especially the gathering of dogs in a covered wagon to fight and bite each other, which may tend to directly spread the disease. He advocates the destruction of worthless, ownerless and vagrant dogs, and the efficient muzzling of all dogs that run in the streets and public places. The results which have been obtained by muzzling justify its enforcement. He gives the examples of England and Prussia as regards this point, and concludes with the following:

For absolute public safety the following measures are suggested: 1. To place the city dog handling under proper medical or veterinary jurisdiction; 2, to prohibit all dogs from running at large unless muzzled or, at least, muzzle all dogs in infected areas; 3, to provide separate compartments in the wagon and at the pound for each dog; 4, to provide safe and proper places for the keeping of dogs suspected of having rabies, especially if they have bitten other dogs or a person; 5, every dog bitten by a rabid animal should be destroyed, or quarantined for at least one year.

Cabot thinks that strict regulations are necessary, and it is an error to suppose that the furious type is the common one. The usual one is the dumb type, the bite of which is equally dangerous. The micro-organisms of rabies, he thinks, are fermentative in character, lying localized for at least twenty-four hours, and then infecting the system by way of the nerves and not directly by the blood. The extent of the wound is of much less importance than its position and after-treatment; a scratch may convey the infection. In the case of wounds about the face and exposed parts an anesthetic should be used if necessary and the wound scrubbed out with a brush and green soap, followed by bichlorid of mercury, 1 in 1,000, as if for an operation. Then fuming nitric acid should be carefully applied by means of a pointed glass rod and the wound dressed surgically. If no general anesthetic has been given he usually uses cocain first after scrubbing, then pure carbolic acid followed by fuming nitric acid. This should be done as early as possible, but he has found by careful experiments on guinea-pigs that it is of value even after twenty-four hours. If we can not obtain nitric acid, the actual cautery is the next best. Nitrate of silver is a very poor caustic, and should not be used. Simple scrubbing and cleansing out the wound with soap and water had some effect, saving 31 per cent. of his infected guinea-pigs. Treatment begun even after forty-eight hours is of some value, and when done within twenty-four hours, and properly, he believes it to be of more value than the Pasteur method. The dog in all cases should be kept alive and watched for a week, and if it remains well then there is no danger. If it dies, the brain should be preserved for examination and inoculation tests made. He does not describe the Pasteur method, but shows that the preliminary treatment of the wound also is to be taken into consideration when deciding on the number of Pasteur injections. He says, in conclusion, that if the disease develops do not give up hope, as one case has been known to recover. This was reported by Gowers, and Cabot considers it possible.

16. **Leg Ulcers.**—The treatment of these ulcers, most frequently due to varicose veins, are described by Langstroth. He gives a few simple rules to follow: 1. Insist on the importance of proper differential diagnosis, which is too often neglected. 2. Avoid all ointments and pastes, relying on aseptics or often, in this condition, antiseptics. 3. Always consider the local and general constitutional treatment. 4. Do not give up the case. The ulcer that will not heal is rare. In varicose ulcer we should remove the cause as far as possible. The radical and palliative treatment may be gained from any work on surgery. Therefore, only two measures are mentioned here: radical treatment, which should be considered only when the operation has entirely healed, and bandaging. He would not use a spiral reverse on the leg because it gets out of place. A properly-applied figure eight of the foot and leg, making all pressure on the up-turns, gives the best results. In very sluggish ulcers, curette the surface and incise the edges. In varicose ulcer of the chronic sluggish type, elliptical incisions around the parts will release the tension. They should be done under aseptic or antiseptic precautions. They cut the fibrous tissue and allow the formation of new capillaries and also allow the ulcer to contract toward its center. Solutions applied to ulcers, on sterile gauze, are the best applications, and he gives several formulæ for these. The saturated boric acid solution is useful where the ulcers readily become inflamed, but it is rather mild for most cases. Alum acetate in saturated solution is useful in chronic cases that have become suddenly inflamed. A 5 to 10 per cent. ichthyol solution in water is also useful. Chronic ulcers must be stimulated in order to heal and more blood must be brought to them. Some of the milder caustics may be em-

ployed at the time of dressing. Silver nitrate, brushing over the wound surface with 40 grains in solution in an ounce of water, or touching the granulated surface with the stick, is sometimes valuable. Rest in bed with elevation of the part is often useful, but should be employed as a last resort for people that have to get around about their daily work. Massage and douches of alternate hot and cold water are useful in all cases. When the ulcer has become healthy and the granulations reach close to the surface, the parts may be strapped with strips of zinc oxid plaster, ¾ in. wide, applied alternately from opposite sides, beginning below and extending well above the ulcer and not allowing the ends to meet within an inch or more. They may be left in place for a week or ten days. Skin grafting is sometimes useful, but not so much so as in cases of burns or acute conditions. If the ulcer has healed a Randolph elastic bandage should be worn indefinitely and the leg doused with cold water and rubbed with alcohol every night and morning. The constitutional treatment consists in hygienic measures, such as regulation of the diet and bowels, tonics, sometimes arsenic, etc. Syphilitic ulcers readily respond to local specific treatment. Creolin solution (half an ounce to a pint of water) is useful in overcoming the odor and removing the slough. Instead of solutions in some cases it may be well to try dusting powders, etc. The formulæ given are those for red wash, Lassar's paste, and balsam of Peru gauze.

17. **Cranial Surgery.**—Cottam remarks on the difficulties of localizing diagnosis and the value of exploratory operation in some of these cases, the avoidance of chemical antisepsis and the necessity for the most careful asepsis. The objects to be accomplished are limitation of the infection, hemostasis and relief of pressure. If this can be done through the ordinary opening, what is the use of making it larger, as is often advised? In no case should the scalp be stitched in an open fracture if the stitching interferes with the drainage in the slightest degree. Simplicity in technic is insisted on. The trephine, he urges, is an obsolete instrument, and in its place are the chisel, the ronguer and the DeVilbiss device. With these in practical hands anything can be done. They do not get out of order or break. He also puts in a word for the osteotegumentary flap as the simplest method of entering the skull for the relief of middle meningeal hemorrhage, growth or abscess or for purely exploratory purposes.

New York Medical Journal.

August 15.

18 *The Significance of Jaundice as a Symptom in Disease of the Biliary Tracts. John B. Deaver.
19 *Regicides; Sane and Insane. E. C. Spitzka.
20 *Phlegmasia Alba Dolens and Its Treatment. Herbert M. Stowe.
21 *Chronic Gastritis. A Clinical Study of 600 Cases. G. W. McCaskey.
22 Double Extra-uterine Pregnancy. Swithin Chandler.

18. **Jaundice.**—The points particularly emphasized by Deaver are: 1. Jaundice is absent in the majority of cases of gallstone disease. 2. Jaundice following acute gastrointestinal symptoms means a catarrhal condition of the ducts, and may be followed by suppurative cholangeitis, with marked jaundice and other symptoms. 3. Jaundice following chronic gastrointestinal symptoms is usually due to chronic pancreatitis with induration and enlargement of the head of the pancreas with or without gallstones after excluding malaria. 4. Acute obstruction of the common duct by stone furnishes the common symptoms usually diagnosed. Chronic impaction is followed by the intermittent type of jaundice without gallbladder enlargement or by no jaundice whatever. If the icterus becomes intense, fever, sweating and chills of suppurative cholangeitis will denote infection. When a patient dies in a condition of intense jaundice we speak as if a cholemia was present. Deaver thinks most of these cases die of infection and not from retention of the bile *per se*. Cholemia he defines as a train of symptoms usually beginning suddenly and ending fatally in a few days, of which the most prominent are jaundice, acute prostration and delirium or coma. The dammed-up secretions compress the liver cells and the retained bile has a deleterious effect. Fatty degeneration or necrosis follows, and with the overgrowth of connective tissue, interstitial hepatitis is produced. The bile itself, the products of the diseased liver cells and the infection of micro-organisms make altogether an autointoxication of which the exact effect is not easily comprehended. We have also various gastrointestinal disturbances such as anorexia, constipation, symptoms of nervous influences, such as disturbances of sight, like the phenomenon of yellow vision, pleuritis, slow and small pulse ascribed to involvement of the nervous apparatus, etc. The excretion of bile pigment by the kidneys must cause disease of their epithelium, and if persistent produce necrotic changes. In the early stages with a slightly yellow tinge; the urine may give no reaction to bilirubin. In the more advanced stages with marked jaundice, the absence of this reaction would indicate the relief of the obstruction. Lastly, there is a certain predisposition towards hemorrhage; epistaxis, hematemesis or intestinal hemorrhage may occur. The system may in time become accustomed to the bile, and any organic symptoms be lacking. There is no direct treatment of icterus. In inoperable cases we can relieve the itching and promote diuresis and diaphoresis in the acute form. In operative conditions, calcium chlorid in 20 or 30 gr. dose three times a day seems to have some effect in preventing hemorrhage. This post-operative bleeding is most frequently met with in jaundice due to chronic pancreatitis and malignant disease of the pancreas. After operation calcium chlorid may be administered per rectum, 30 or 40 gr. every four hours with a full dose of opium. Deaver pleads for a careful study of the icterus cases so as to be able to form a diagnosis as rapidly as possible and call for surgical consultation before the damage has become too great.

19. **Regicides.**—Spitzka's article is to be continued. In this installment he seems to think that the ordinary type of political assassin is decreasing with higher culture, and that there will be comparatively few sane regicides among the Anglo-Saxon, Germanic or French population in the future. We will have to look to the Italian, Balkan and Iberian peninsulas for the sane assassins of the future. His views as to the proportion of sane regicides are well known from his former publication, and he seems to believe that at the present peril is in the organized anarchists in civilized countries. The economic conditions met with have little to do with it. The promotors and actors in the assassination of prominent people are not suffering from economic conditions themselves. They are more often anarchist enthusiasts with the common misguided ideas about tyranny and freedom, and are not insane.

20. **Phlegmasia Alba Dolens.**—The mechanism of this trouble which is generally held to be due to thrombophlebitis is studied by Stowe. He thinks there is some probability in the hypothesis of Tilbury Fox that obstructive lymphangeitis is the hitherto unknown factor which enables thrombophlebitis in this case to produce the well-known symptoms. He thinks a reasonable position is to take the middle ground and say that thrombophlebitis is the primary cause. Increased activity of the lymph following occlusion occurs in weakened vessels producing thrombosis in a manner similar to its production in the veins. This, of course, applies only to the main vessels. The condition of the blood is to be taken into account. The treatment is mainly summed up in prophylaxis; proper care during pregnancy, putting the patient on small doses of calcium chlorid for three or four weeks prior to the expected labor and carefully inspecting the conditions immediately following placental delivery and carefully guarding against lacerations. He has found the best results for perineal protection in delivery on the side, keeping the head pressed against the sphincter, gradual dilatation of the pelvic outlet and delivering the head between pains. Asepsis is the ideal condition; when that fails we may have to fall back on thorough antisepsis. When phlegmasia dolens has occurred in spite of care, the patient should be put to bed and kept quiet and the limb raised on an inclined plane six or seven inches and enveloped in a compress of gauze retained by a roller bandage. During the acute stage much relief can be obtained by keeping the

compress as hot as can be borne. No massage should be allowed early in the disease. For the pain morphin in some form is at times indispensable; when not so severe, other drugs may be substituted. The bowels should be kept open by salines. Cardiac tonics are often indicated. When the subjective symptoms have ameliorated measures should be taken to remove the semi-solid matter from the tissues. Gentle massage and the use of dry hot-air as early as possible, which is, he thinks, one of the best measures of all. Potassium iodid or protoiodid of mercury is to be given for weeks and months. Calomel in small doses is also of advantage.

21. **Chronic Gastritis.**—McCaskey has studied the conditions as to the acidity in this disorder, and thinks that it is possible that primary hyperchlorhydria may play an etiologic rôle in its production. He does not think the condition can be excluded in the diagnosis on the ground of increased HCl. He finds that a slight majority of his patients are males and between 20 and 40 years of age. Nearly one-half the cases are farmers and housewives, about 72 per cent. follow indoor occupations, but the majority of them active ones. He calls attention to the frequent latency of the disease and to the defective motor power of the stomach, which he thinks plays an important part in the disorder. The treatment consists in careful attention to nutrition, which is generally below par, elimination, moderate gymnastics, deep breathing, hydrotherapy, general faradism, etc. Of local treatments, lavage is the simplest and most abused of all the methods. It is only advisable when there is a considerable amount of mucus or other debris. Electricity is of great help, and he would use faradism with intragastric electrodes. Another method of great value is the use of finely divided medicaments, using the Einhorn apparatus for concentrated drugs and Turck's nebulizer for the milder applications. He has also found Turck's gyromele, as lately modified by the inventor, of much value. Electric vibratory massage applied over the stomach, which may be distended with air, is also of advantage. Care should be taken against over-treatment and careful individual treatment applied in every case.

Medical Record, New York.

August 15.

23 *Consideration of Mammary Cysts in the Differentiation of Breast Tumors. Robert Abbe.
24 *Prostatic Hypertrophy and Its Radical Cure. William P. Herrick.
25 *The Causation of Cancer and Its Treatment without Operation. Robert Bell.
26 *Pathology and Treatment of Pneumonia. John North.
27 The Principle of Life and Cognate Things. Joseph Clements.
28 An Unusual Case of Empyema of the Antrum of Highmore. Sidney Yankauer.

23. **Mammary Cysts.**—Abbe holds that mammary cysts are much more common than is generally thought. They are frequently diagnosed as malignant, and treatment by extirpation recommended, when it is unnecessary, on the ground that if not malignant the gland is likely to become so. Formerly he himself considered them as degenerative, but of late years it has been his custom to test the nature of the tumor by aspiration before making an absolute diagnosis. Reviewing his private practice in eight years he has seen 41 cases of mammary cyst and 56 of scirrhous tumors, besides a number of innocent inflammatory adenomas, and he thinks this is not far from the average surgical experience. Two points have impressed him in this series of cases: 1. The differential diagnosis, which can be said to be easy and absolute, and 2, the cure, which can also be said to be easy and absolute. He calls attention to the deceptive hardness, which renders it impossible sometimes to determine the cystic character of the tumor without exploratory aspiration. When the tumor is found to be cystic, the withdrawal of fluid in the great majority of cases seems to be sufficient for a cure. In only 2 of his 41 cases was the cyst refilled and secondary aspiration required. He thinks it is the duty of every surgeon to test the nature of each doubtful hard tumor with an aspirating needle thrust quickly into its very center, sterilizing the skin by a moment's friction with alcohol. The results in satisfaction to the patient and practitioner, he thinks, will be all that can be desired.

24. **Prostatic Hypertrophy.**—The various methods of operating on an enlarged prostate are reviewed by Herrick, who describes the methods and discusses their merits. In conclusion he says:

1. These cases must be judged more or less individually.
2. When chronic posterior urethritis and prostatitis exist, these should receive appropriate treatment, the catheter used to withdraw residual urine, and the result carefully watched.
3. In patients in whom operation has become too hazardous, we must endeavor to improve their general condition, and, if necessary, do aspiration or perineal cystotomy under cocain, endeavoring to prepare them for radical operation or alleviate their symptoms. Advanced arteriosclerosis should also be carefully considered.
4. Our responsibility is in recognizing and properly urging operation when indicated; if it is refused we have done our duty, and the patient must abide the issue with such means as remain.
5. Palliative operations should rarely or never be done from their hazardousness and inefficiency.
6. Prostatic hypertrophy is now curable by means of an operation which, though serious, is not hazardous when undertaken in proper time and manner. Failure of palliative treatment, of course, gives hope alone through operation, but should be anticipated rather than persisted in. In general infection, especially if repeated, as in irritable cases, obstructive cases unless promptly relieved by its sound and under observation, if residual urine is increasing despite catheterization, or the patient's general health is being impaired, all indicate the time for operation.
7. Anatomically, and now surgically, the simple perineal is the direct and preferable route. Rarely suprapubic exploration or lithotomy may be advantageously added to it.
8. As statistics accumulate, we believe that radical cure may further anticipate the course of the disease.

25. **Cancer.**—Bell holds that cancer, or the elements of cancer, are present in every normal individual. The cancer entity is in its original state a normal cell, which from circumstances is altered in character and assumes a new rôle of existence, losing its benign attributes, becoming aggressive and cannibalistic, preying on its neighbors. He draws attention to the fact that epithelioma invariably retains its epithelial character, and, under conditions of enfeebled general health, may take on a malignant form, though often innocent in its first beginnings. The importance of the thyroid body to the epithelial elements is mentioned. His theory of cancer is that intestinal toxins affect this organ, disturb the balance of nutrition and set up a morbid process. He sums up the treatment in the administration of thyroid gland, supplemented by measures to destroy the saccharomycetes in the intestinal tract, which are almost invariably present in cancerous subjects, and to prevent the perpetuation of their effects on the enterotoxins. In conjunction with thyroid extract it is, therefore, advisable to administer the salicylates in one form or another, and also to relieve constipation. The diet should be modified so as to be composed largely of milk food, thyroid extract administered in 5-grain doses three times a day, and along with this, 10 to 15 grains of salicylate of sodium, and local applications used to remove all sources of irritation. If the disease has not advanced too far he thinks the condition will yield to this treatment. In conclusion he sums up the predisposing causes of cancer in the following:

1. Persistent and prolonged retention of feces containing an undue proportion of decomposing albuminous material, from which enterotoxins are derived, and by absorption conveyed to the blood.
2. The blood thus contaminated produces a depraved condition of the nervous apparatus, thereby handicapping the functional activity of the various organs, interfering with cell metabolism, and eventually culminating in anemia in young persons, or cachexia in the elder.
3. If the functions of the thyroid gland are at fault, these toxins, which otherwise would be neutralized, remain in a position capable of producing serious mischief.
4. If saccharomycetes are present in the blood, this toxic material is liable to undergo chemical changes, resulting in the formation of uric acid, when uricacidemia will result.
5. The presence of these toxins in the blood, alone or combined with uric acid, exerts a pernicious influence on cellular structures, and confers on them a predisposition to take on a malignant metamorphosis.
6. Prolonged or repeated irritation of a part is liable to rouse into malignant activity cells which otherwise would have remained dormant.
7. The vitiated condition of the blood by prostrating the physiological vitality of the various organs and cellular structures and paralyzing the *vis medicatrix naturæ* affords every facility for the new growth to establish its identity and increase its area at the expense of its environment.

26. **Pneumonia.**—North holds that our great death rate in pneumonia is due to the antiphlogistic treatment of the disease. Pneumonia is not properly an inflammation, and should not be treated as such. A light nutritious diet, and the use of quinin in 2-grain doses every two hours in the beginning to diminish leucocytosis may abort the disease if begun

promptly in full dose at the beginning. He would also use ammonium chlorid and aconite in minute doses, which is of great value. Opium or its derivatives is also used throughout the disease. He prefers svapnia to other forms, given in 1/10-grain doses every two hours, stimulating the respiratory center and acting as an expectorant. Large doses should never be given. Heroin in 1/12 grain doses is sometimes very valuable. Alcohol, strychnin, nitroglycerin, digitalis, veratrum, salicylates, creosote, derivatives, saline injections, etc., are all useful in pneumonia if used in the proper stage or to combat complications as they arise. Warm applications, cold packs and cold sponging are called for in almost every case, depending on conditions and circumstances.

Cincinnati Lancet-Clinic.

August 15.

29 *The Relation and Co-relation of Gynecologic and Nervous Affections. Chauncey D. Palmer.
30 Deafness and Results. E. L. Mather.
31 *Mercurial Injections in Syphilis. William F. Bernart.
32 Surgery of Prostate, Pancreas, Diaphragm, Spleen and Thyroid. (Continued.) B. Merrill Ricketts.

29.—See abstract in THE JOURNAL, xl, p. 1529.

31. **Syphilis.**—Bernart advocates the method of mercurial hypodermic injection in syphilis on account of its accuracy, the conciseness with which the therapeutic and physiologic lines can be drawn, the absence of gastric and kidney troubles, the rapidity of its action and its practical painlessness. The objections to it have been the alleged occasional fatality, the production of irritation and the necessity of its being carried out under the direction of a physician. The first two of tnese he considers of small importance and as likely to be raised against any method of treatment whatever. The fact that it requires the close personal attention of a physician is, in his opinion, one of its strongest recommendations. The alleged painfulness is, he thinks, under proper use absent. The preparation which he recommends and which he finds most useful is the following:

Mercuric chlorid	.50	(7 7/10 grs.)
Sodium chlorid	.25	(3 4/5 grs.)
Boiling distilled water	25.00	(6 1/4 drs.)
When cool add:		
Carbolic acid	.15	(2 1/10 grs.)

Of this 1 min. equals 1/50 gr. of mercuric chlorid, 1/100 gr. of sodium chlorid, and 1/160 gr. of carbolic acid. It can be given as high as 20 min., but usually 5 min., given daily, will give sufficiently rapid results. The carbolic acid readily controls the pain, and in a 5 min. injection the patient only receives 1/32 gr.

In choosing the site of the injection the post-trochanteric, he thinks, is most desirable. Several cases are reported.

St. Louis Medical Review.

August 15.

33 Personal Experience in the Treatment of Typhoid Fever. George R. Highsmith.

Therapeutic Gazette, Detroit.

July 15.

34 *Remarks on the Treatment of Paralysis Agitans (Parkinson's disease). J. Madison Taylor.
35 A Case of Large Aortic Aneurism Treated by the Introduction of Gold Wire and Electrolysis, Followed by Cerebral Embolism; Recovery. Julius L. Salinger.
36 The Therapeutic Uses of the Preparations of Benzoin. H. R. Coston.
37 *Cow's Milk Kumyss as a Nutrient in Disease. E. F. Brush.
38 Summer Complaints of Children. Samuel A. Visanska.
39 *Conservative Treatment of the Antrum of Highmore. Preston M. Hickey.
40 Poisoning by Camphor; History of Case; Recovery. Charles Stanley White.
41 *A Pharmacological Study of an Aseptic Preparation of Ergot Devised for Hypodermic and Internal Administration. E. M. Houghton.

34. **Paralysis Agitans.**—The treatment of paralysis agitans as suggested by Taylor is the use of carefully directed movements, passive and active, to overcome contractures and loosen the joints, education in voluntary movements, almost solely of the extensors in the arms and the flexors in the legs, but not neglecting other muscles. These should be instituted gradually. Great attention should be paid to the hands and feet. He sums up his treatment in that it consists in trying to overcome the growing apathy; to induce systematized return to normal activities; to use all gentle and yet forceful means to secure elasticity to the tissues, and finally, to stimulate the circulation in the spinal cord by graduated pressure on the spinal areas, thus restoring reflexly many of the fibers of the cord to function and improving others. Care and persistence on the part of the physician and the co-operation of the patient are essential. He does not prophesy a cure in these cases, but great improvement has been obtained in some very severe cases, warranting the hope that still better results can be obtained.

37. **Kumyss.**—Brush finds kumyss of special value in diseases of the digestive organs, such as catarrh, chronic diarrhea and in many cases of dyspepsia. It is the most grateful and useful food in continued fevers and in the convalescence from typhoid and pneumonia. In consumption it is invaluable, especially in the beginning stages. It is useful in chlorosis, anemia and prolonged lactation and all conditions of defective nutrition. He quotes the experience of other physicians as to its value in summer complaint of children and badly nourished cases. It is particularly useful in alcoholism and delirium tremens. The dose varies. The amount for the adult is the largest that can be taken without discomfort. In continued fevers the dose should be all that the patient requires for nourishment and to quench thirst. For infants the dose is correspondingly small, in some cases beginning with a teaspoonful.

39. **Antral Disease.**—Two cases are reported by Hickey, who offers the following conclusions: 1. Acute inflammation of the antrum when due to nasal infection should be treated conservatively for the first two weeks. 2. The constringing effect of adrenalin offers us a valuable and non-toxic agent in reducing swelling about the hiatus semilunaris. 3. When severe symptoms occur the proper position for favorable drainage from the natural outlet should be insisted on.

41. **Ergot.**—Houghton reports experiments made with ergot resulting in a new preparation which was made to obtain in solution as large a percentage of the sphacelinic acid and cornutin and other constituents of this type and rejecting as large an amount of the irritating and depressing principles as possible. This was produced by percolating through various media and throwing out by proper precipitants the undesirable constituents, checking the process by testing the filtrates and precipitates, giving them to roosters, observing the blackening of combs, etc., and the amount of irritation by hypodermic injections in guinea-pigs and studying the abortifacient effect on pregnant animals. The resulting product was a clear, transparent, light amber fluid representing one part by weight of the crude drug; of the same strength as the U. S. P. fluid extract. To act as a preservative a small quantity of chloretone was added, also for its local anesthetic properties. The substance thus produced is called ergone. He thinks it possesses the great advantage of being less toxic than the pharmacopeial preparation of ergot or Bonjean's extract. It is aseptic, non-irritating when given internally or subcutaneously, and physiologically active, at the same time being less toxic. Further clinical trial will be required to show its therapeutic value.

Canadian Journal of Medicine and Surgery, Toronto.

August.

42 *The Treatment of Chronic Empyema. A. Primrose.
43 A Case of Tubercular Laryngeal Stenosis Treated by Tracheotomy. J. Price-Brown.
44 The X-Ray in Sarcoma, with Case. Charles R. Dickson.

42. **Chronic Empyema.**—Primrose reports cases treated by drainage and insists on the importance of this being as efficient as possible if much is to be gained by the procedure. He has not much faith in irrigation, and believes that it is liable to be dangerous. Many cases will be carried to a successful issue if drainage is maintained. He advises whenever pus is discovered in the pleural cavity to get rid of it in the early stage of the trouble by free drainage. Where this has had a fair trial and cure is not effected, Schede's operation of thorax resection should be undertaken if the general condition of the patient warrants it.

New Yorker Medicinische Monatschrift.

June.

45 *Typhus Abdominalis and Trinkwasser. A. Seibert.

45. **Water Supplies and Typhoid.**—Seibert's article is a study of the effect of filtration of water supplies on the occurrence of typhoid in various cities, which he illustrates by the graphic method in a very striking way. Especially is this marked in the case of some German cities like Hamburg, Hanover, Berlin and Breslau, where the sudden drop in the ratio of typhoid mortality is very remarkable. He concludes from his study that all lakes, rivers and brooks which exist in populated parts of the United States and Germany have been long infected with the typhoid bacillus, and that the chief carrier of the typhoid germ into the human body is the water supply of the town. All towns, therefore, which are compelled to depend on lakes, rivers and water courses for their water supply should avail themselves of the benefits of central sand filtration.

Texas Medical Journal, Austin.

July.

46 *Appendicitis: Ochsner's and Deaver's Methods Compared. W. J. Matthews.
47 Nephritis in Summer. William F. Waugh.
48 Experience vs. Theory. L. L. Loggins.

46. **Appendicitis.**—Matthews is a strong advocate of Ochsner's method of treating appendicitis, delaying operation if the attack has already lasted forty-eight hours, until all acute symptoms have disappeared for at least two weeks, and then removing the appendix. Under his system of rectal alimentation and stomach washing he thinks we are able to save even desperate cases. The statistics show well in its favor.

Alabama Medical Journal, Birmingham.

July.

49 *Auto-intoxication and Its Relation to Disorders of the Nervous System. Benjamin Leon Wyman.
50 Traumatic Aneurism of the Femoral Artery. R. P. Huger.
51 The Clinical Uses of the Microscope. J. N. Baker.
52 *One Hundred Consecutive Cases of Myoma of the Uterus. Guy L. Hunner.
53 Glioma of Retina, with Report of Case. Allen A. Greene.
54 The Proper Management of Cases of Labor. W. H. Bell.
55 Illustration of the Circulation of the Uterus, Oviducts and Ovaries by the X-Ray and Bromide Method. Byron Robinson.
56 Hypertrophy of Tonsils. E. B. Hardin.

49. **Autointoxication in the Nervous System.**—The various autotoxins and autotoxemias are noted by Wyman, especially regarding their effect on nervous disorders. He finds as a result of his study that some autotoxin is an etiologic factor of very great importance in many functional nervous disorders, producing symptoms either by lessening, retarding, perverting or arresting the functional capacity of the nervous center, or by interference with the transmission of nerve impulses, involving both the central and peripheral neurons. Repeated and chronic autointoxication may lead to actual organic disease.

52. **Myoma of the Uterus.**—The 100 cases that are analyzed by Hunner occurred in the service of Dr. Howard A. Kelly during the former's term of eighteen months as resident gynecologist from Jan. 1, 1901, to April 1, 1902. Some of them are detailed. The following operations were performed: Myomectomy, 19; panhysteromyomectomy, 14; supravaginal hysterosalpingo-oöphoromyomectomy, 40; supravaginal hysteromyomectomy, leaving one or both ovaries, 16; vaginal myomectomy, 5; vaginal hysteromyomectomy, 6. Nine cases were treated by the method of bisection. There were 6 fatalities. In 5 of them the tumor was complicated by serious pelvic inflammatory disease. One died on the sixth day from septicemia; one on the third day from peritonitis, and one the fourth day from iliac vein thrombosis with embolism carried to the pulmonary artery; one died in ten hours from shock, which was noted before the operation; one and possibly two of the cases could have been saved if more time had been taken and the tumors removed by slow dissection. He says, while he does not undertake to draw conclusions, he thinks that if we meet in a brief record of 100 cases such a record of suffering, sterility, miscarriages, extrauterine pregnancy, hemorrhage, anemia, malignant growths, infections and deaths, one would not wonder as to his radical position as regards myoma. He does not say that he would operate in every case, but he thinks as our knowledge of the seriousness of the condition increases the indications for operating will expand.

Quarterly Journal of Inebriety, Hartford, Conn.

July.

57 *Inebriety a Disease. Lewis D. Mason.
58 *Are the Questions Relating to the Nature, Effects, Uses and Abuses of Alcohol as Existing in Fermented and Distilled Liquors Political Questions, to Be Settled by Votes at Ordinary Elections, or Are They True Questions Concerning the Public Health and Morals, and Therefore to Be Dealt with by the Sanitary Authorities and Courts of Justice? N. S. Davis.
59 Infantile Alcoholism. L. G. Robinovitch.
60 The Correlation of Alcoholism, Crime and Insanity. C. A. Drew.
61 Hyoscin in the Treatment of Morphinism. T. D. Crothers.
62 History of the International Anti-alcohol Congresses and the Temperance Movement on the European Continent. A. Forel.

57. **Inebriety a Disease.**—Mason pleads for the consideration of inebriety as a disease, not a vice, of the individual and its consideration on the same plan as insanity by the state and public.

58. **Alcohol and Public Health.**—Davis' article is a plea that alcohol should be treated as a poison, its use to be dealt with by the law as is the case with other poisons. He says the same methods of investigation applied to ether, morphin, cocain, etc., are fully credited and promptly acted on, but that in the case of alcohol the greed for pecuniary profits outweighs the regard for human welfare. As long as the contest can be kept in the field of politics these reasons will prevent anything more than temporary or partial success in the strife against alcohol. He does not say that the success in any case would be complete any more than it has been in regard to murder, theft, etc., but these occur less frequently than would be the case if laws for their direct suppression were not in force, instead of their regulation by licensing persons to do all the killing, stealing, etc., on payment of a certain amount to the public funds.

Buffalo Medical Journal.

August.

63 Some Curiosities of Medical Practice. Chauncey P. Smith.
64 *A Theoretical Note on the Vital and Toxic Theories of Cancer, and Their Bearing on the Parasitic Theory. G. H. A. Clowes.
65 *The Medical and Surgical Treatment of Bright's Disease. Charles S. Jewett.
66 Clinical Notes on Dysemia. Louis J. Gravel.

64. **Cancer.**—The theories of cancer are reviewed by Clowes, who attempts to show that the parasitic theory is not in any sense incompatible with various toxic or chemical theories, and that the production of the toxins generally recognized as playing an important part in this disease may be most readily attributed to some form of intracellular parasite. This explains the constant stimulation of cancer cells and the selective action of the toxins for one particular cell to the exclusion of others, and the apparent impossibility of infecting healthy individuals with cancer blood.

65. **Bright's Disease.**—The various treatments of Bright's disease, especially the surgical treatment suggested by Edebohls, are noted by Jewett, who offers the following tentative conclusions:

1. In certain cases of acute nephritis operation may be of use in relieving suppression of urine, pain, or hematuria; it may, perhaps, hasten recovery and aid in the prevention of chronic nephritis.
2. In hopeless cases of chronic nephritis, decapsulation will sometimes relieve distressing symptoms and prolong life.
3. Should the results claimed by Edebohls be duplicated in the practice of various operators, and should the supposed reparative results of his operation be confirmed by future autopsies, then the possibility of operative cure of certain cases of chronic nephritis must be admitted.

Maryland Medical Journal, Baltimore.

August.

67 The Origin, Purpose and Working Methods of the Medical Milk Commission. Henry L. Coit.
68 *The Use of Antitoxin in Diphtheria Associated with Pregnancy. J. Elmond Kempter.
69 *Two Minor Communications from the Clinical Laboratory. Thomas R. Brown.

68. **Antitoxin in Pregnancy.**—Kempter reports a case of diphtheria in a woman eight months pregnant which was treated by antitoxin with the usual good results. He thinks this is the first case recorded in which antitoxin was used during pregnancy and a healthy child was born at term. He suggests the possibility of production of immunity in a child by the use of antitoxin in the mother.

69. Salt **Solution Enemata and Leucocyte Counting.**—Brown suggests the value of salt solution enemata, especially after renal operations, on account of their diuretic effect and reports experiments. As a result of these it has been the custom in Dr. Kelly's private hospital to use the following method in all cases where the kidney has been operated on: A pint or more of normal salt solution is administered by rectum every six, eight or twelve hours, according to the needs of the case, for a number of days after the operation. This has caused in 6 cases of nephrotomy and 12 or more of nephropexy in which the plan has been adopted a very free secretion of urine. Convalescence has been more comfortable and nausea and headache markedly diminished. The method is so simple and so easily carried out that he thinks it should be incorporated among the general procedures in the after-treatment of all cases operated on under general anesthesia.

In the same article he reports a number of cases of appendicitis in which the leucocyte count was used, illustrating its value as distinguishing cases of peritonitis, autointoxication, constipation, hyperchlorhydria and intestinal obstruction. Peritonitis is always accompanied with leucocytosis, excepting in intense infections, and intestinal obstruction is associated with it when inflammatory processes or beginning gangrene exist. Autointoxication with constipation and intense hyperchlorhydria are not associated with the leucocyte increase, and are to be treated on medical not surgical lines, hence the absence of leucocytosis may be of real value in distinguishing whether or not post-operative surgical interference is advisable, especially in anemic patients or those with an atonic condition of the gastrointestinal tract or those in whom the intestines had been handled a great deal. The leucocytosis of infection must not, of course, be confused with the transient post-anesthetic leucocytosis, especially if ether has been employed. He reports the conclusions of King on post-operative non-septic leucocytosis, noticed in THE JOURNAL, xxxix, ¶49, p. 723.

Western Medical Review, Lincoln, Neb.

July.

70 Medical Inspection of Schools. S. R. Towne.
71 *The Treatment of Scarlet Fever: Its Complications and Sequelæ. H. M. McClanahan.
72 The Acute Heart Disease of Children. H. Winett Orr.
73 Ectopic Gestation, with Special Reference to Diagnosis. Georgiana Grothan.
74 Dystocia. A. B. Somers.
75 The Business Side of Obstetrics. Mary A. Quincy.

71.—This article appeared in THE JOURNAL, July 4, 1903, page 31.

Texas Medical News, Austin.

July.

76 *The Poisonous Snakes of Texas, with Notes on Their Habits. J. D. Mitchell.
77 *Tropical Diseases: The Importance and the Opportunity for Their Study in Texas Imposes the Obligation to Provide the Facilities for Training Medical Men in Their Prevention, Diagnosis and Treatment. John T. Moore.
78 Tubercular Peritonitis. J. E. Gilcreest.

76. **Poisonous Snakes of Texas.**—Mitchell describes the poisonous snakes of Texas, of which he enumerates 12, all with one exception belonging to the crotalus family or pit vipers, which includes the rattlesnake and copperhead. The exception, *Elaps fulvius*, which seems to be not uncommon there, is a deadly poisonous snake, though seldom so considered as it is not aggressive.

77. **Tropical Diseases.**—Moore's chairman's address in the Section on Practice of Medicine of the Texas Medical Society is a plea for the establishment of an institute or chair for instruction in tropical diseases, which, he says, are likely to occur in Texas. That state, he shows, has some special advantages for their study.

Medical Age, Detroit.

July 25.

79 Ocular Evidences of Kidney and Liver Disease. F. E. Sampson.

International Journal of Surgery, New York.

August.

80 Gunshot Wounds of the Abdomen. Henry Janes.
81 A Brief Résumé of Pelvic Abscess; Its Diagnosis and Mode of Attack; with a Short Narrative of Five Cases Illustrating Points in the Diagnosis. Thomas H. Manley.
82 The Technics of Amputations. R. H. Cowan.
83 Operation for Complete Laceration of the Perineum without Leaving Stitches in the Bowel. C. E. Cantrell.
84 The Surgical Assistant. Abdominal Operations. (Continued.) Walter M. Brickner.
85 Excision of Entire Colon; Death. Emory Lanphear.
86 Report of a Case of Senile Gangrene. B. N. Stevens.
87 Gunshot Wound of Mother and Child Thirty-three Hours Prior to Delivery. W. H. Wiley.

Journal of Advanced Therapeutics, New York.

August.

88 On the Administration of Strong Galvanic Currents to Patients. Robert Reyburn.
89 Newman's Portable Galvanic Battery. Robert Newman.
90 X-Ray Therapy. William L. Heeve.
91 The Treatment of Insolation on Heat Stroke. Curran Pope.
92 Mechanical Vibrations as a Physical Agent in the Treatment of Disease. Frederic H. Morse.
93 Psychic-Therapy. J. Holcomb Burch.

Mississippi Medical Record, Vicksburg.

August.

94 Address Before Mississippi Department of Public Health. C. Kendrick.
95 Report of a Case of So-called Sporadic Scarlatina. Fred M. Brougher.
96 Treatment of Extreme Urinary Retention. E. Forrest Hayden.

Toledo Medical and Surgical Reporter.

August.

97 Medical Trades Unionism. Charles M. Harpster.
98 Report of a Case of Empyema. Frank Warner.
99 A Method for Removal of the Prostate Gland. Hal C. Wyman.
100 Neglected Opportunities of Boards of Health. C. O. Probst.

Fort Wayne Medical Journal-Magazine.

July.

101 Obstruction of the Bowels; Report of a Case, with Remarks. L. H. Dunning.

Pennsylvania Medical Journal, Pittsburg.

July.

102 Pulmonary Tuberculosis; Etiology and Symptoms. John E. Scheifly.
103 Sanatorium Treatment. Elwell Stockdale.
104 The Diagnosis and Prognosis of Early Pulmonary Tuberculosis. Charles H. Miner.
105 The Home Treatment of Tuberculosis. Walter Davis.
106 Inguinal Hernia. J. F. Davis.
107 Phototherapy and Radiotherapy, with Report of Cases. Russell H. Boggs.
108 A Case of Perityphlitis. L. B. Kline.
109 Debatable Points in the Treatment of Appendicitis. W. D. Hamaker.
110 Neurasthenia. T. M. T. McKennan.

Wisconsin Medical Journal, Milwaukee.

July.

111 The Present Status of Surgery of the Stomach. William J. Mayo.
112 Digestion in Infancy. Albert W. Myers.
113 Chronic Appendicitis; Report of Two Cases with Obscure Symptoms. L. H. Prince.

Colorado Medical Journal, Denver.

May.

114 Appendicitis in Children. Frank S. Churchill.
115 Gleet; What Is It and How Can the General Practitioner Successfully Treat It? Donald Kennedy.
116 Epilepsy Following a 5-grain Dose of Camphor Monobromate; Report of a Case. H. A. Lord.

Columbus Medical Journal.

July.

117 The Physician and His Ideals. Rev. Carl Gregg Doney.
118 Eczema. J. B. McComb.
119 Enlarged Tonsils, a Cause of Middle Ear Catarrh. C. P. Linhart.
120 Congenital Hypertrophy of the Pylorus. William D. Inglis.
121 Fractures of the Clavicle. William L. Dick.

Medical Examiner and Practitioner, New York.

July.

122 Incidence of Nervous Disease in Life Insurance Examinations. Harold N. Moyer.
123 Physical Signs of Arteriosclerosis. Charles L. Mix.
124 Life Insurance and Medical Examinations from a General Agent's Standpoint. James L. Ferguson.
125 A Study on Light. J. Mount Bleyer.
126 Open Fractures of the Shafts Involving the Articulations. Thomas H. Manley.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

August 8.

1 A Discussion on the Vaccination Acts and the Prevention of Smallpox. J. C. McVail.

2 The Midwives' Act of 1902. J. Ward Cousins.
3 *The Spread of Enteric Fever and Other Forms of Illness by Sewage-polluted Shellfish. Arthur Newsholme.
4 *River and Seashore Pollution as It Affects Shellfish. (To be continued.) J. T. C. Nash.

3. **Shellfish Infection.**—Newsholme notices the more recent outbreaks of typhoid, etc., attributed to shellfish, and reviews the evidences. The clinical evidence is supported by the ability to exclude other known causes and the topographical evidence by tracing the molluscs to their original layings and the changes that have been made. The bacterial and chemical evidence is of last and least importance. He suggests legislative regulation and control of the supply and the sale of these articles of food.

4. **Shellfish Pollution.**—Nash takes up the same subject and points out how the purification of sewage may extend the dangers.

The Lancet, London.

August 8.

5 *The Causes, Prevalence and Control of Pulmonary Tuberculosis. H. Timbrell Bulstrode.
6 *The Development of Insanity in Regard to Civilization. Robert Jones.
7 Pernicious Anemia, Following Parturition. William Elder.
8 A Case of Septicemia. F. J. Strong Heaney.
9 Cicatricial Constriction of the Abdominal Wall and of the Left Thigh Attributed to Compression of the Umbilical Cord. C. O. Hawthorne.
10 Observations on Mastication. Harry Campbell.
11 An Analysis of the Vaccination Statistics of the Metropolitan Asylums Board for 1901 and 1902. J. E. Sandilands.
12 A Note on Colotomy and Colectomy. F. T. Paul.
13 *Can the Respirable Products of Human Waste Hinder Development and Lower Vitality? John Hartley.
14 *Ichthyol in the Treatment of Pulmonary Disease. James Burnet.

5. **Tuberculosis.**—Bulstrode in this third lecture reviews the sanitarium system and the laws as regards notification in different countries, putting Germany at the head of the rank in its efforts of combating tuberculosis. He says if the compulsory notification of tuberculosis implies all the discomforts usual with the notification of contagious diseases, it would be improper. The only way is to have consumption in a special category by itself. He thinks in this case there will be no great difficulty in obligatory notification. He doubts, however, whether it is advisable to include other than pulmonary cases under this rule. Another important matter would be the preparation of facilities for bacteriologic examinations, still others, the education and examination of school children, the control of expectoration, etc. He does not have full confidence in resort to the sanatorium movement. As a curative agent these institutions are almost indispensable and in prevention they largely curtail the prevalence of the disease by education, but there is still a large margin of danger in the patients that leave these institutions. The mere isolation of early cases in a sanatorium is not a panacea.

6. **Insanity.**—Jones points out how the stress of modern civilization and the tendency to urban concentration has increased insanity. While the present system of education has raised the general intelligence, it has destroyed the individuality to a large extent. Altruism is lessening. The well-to-do classes are more self-indulgent, and as to the improvement of the workingman's condition he thinks it has drawbacks as well as advantages. Higher wages seem only to increase discontent and the socialist tendency is one leveling down and crushing individual attempts to rise. He thinks that alcoholism in women is increasing. With the progress of civilization he says insanity is not only on the increase, but the occurring varieties are less curable. The physique of the urban population has deteriorated. The statistics of recovery are less favorable today than they were twenty-five years ago. Serious as the case may be we can not hope for or expect relief from the great financial and economic burden of providing accommodation for the insane in the future. If relief is to come it will be in some great change affecting the physical as well as the mental health of the masses of the people.

13. **Bad Air.**—The evil effects of vitiated atmosphere are insisted on by Hartley, who thinks that the respiratory products of human waste in the atmosphere go a long way to injure the public health. The idea of the perfect wholesomeness of atmosphere is, he thinks, possibly a mistake. We flood our rivers and pollute the sands of our health resorts with the sewage and we ventilate our sewers in narrow streets and alleys at the road level, and as to our sleeping rooms, most of us do not ventilate them at all in clearing out waste products. He says one is led to question whether the ills usually ascribed to the high pressure of modern civilization may not be more justly laid to the toxins given off by our crowded population.

14. **Ichthyol in Tuberculosis.**—The value of ichthyol in the treatment of tuberculosis is described by Burnett, who gives his experience. He does not claim to have cured his cases, which were 13 in number, all of the ordinary slow progressive type. Eleven were distinctly improved. Only 2 failed to show any beneficial results, and these were of the advanced type with both lungs extensively involved. The first sign of improvement was in the cough, improvement in sleep and lessening of expectoration followed. Gain in weight was not observed until the patients had been under treatment for a considerable period, but in every case there was marked nutritional improvement and food was taken with greater relish. All the gastric discomforts previously present had left. Age did not seem to count much in the treatment by this method. The amount given was 8 to 20 grains four times a day; he gave it in capsules containing 4 grains, and in every case he started with 2 capsules four times a day and increased the amount until five were taken at each dose. This seems a large amount, but is tolerated when the drug is taken in this way. He does not consider that it acts as an antiseptic to any great extent, but it has a direct effect on general nutrition, acts as a vasoconstrictor and relieves and removes congestion and inflammation. His firm conviction is that it is a distinct anti-inflammatory agent, but is also to some extent an antispasmodic. He finds it absolutely free from irritating properties so far as the stomach is concerned.

The Practitioner, London.

August.

15 The Treatment of Gout in Carlsbad. B. London.
16 *Some Points on Metabolism in Gout; with Special Reference to the Relationship Between the Uric-acid and the Phosphoric-acid Elimination in the Intervals and During Acute Attacks. Thomas B. Futcher.
17 *An Inquiry into the Causation of Tuberculosis in Children. Cecil Price-Jones.
18 Variations in the Technic of Cataract Extraction as Performed in Some Continental Eye Hospitals. R. H. Elliot.
19 Peripheral Neuritis of the Alcoholic Type. Leonard Williams.
20 The After-Treatment of Empyema in Infants. S. Vere Pearson and P. Lockhart Mummery.
21 The Present Position of Our Knowledge of Diseases of the Pancreas. B. G. A. Moynihan.
22 Tropical Diseases; a Review of Recent Work. R. Tanner Hewlett.
23 Cases with Comments. A Case of Threatened Puerperal Eclampsia, Edward Ellis. A Case of Double Hare Lip, with Absence of Nasal Septum, S. Davidson.
24 Enteric Fever and Infected Blankets. Louis C. Parkes.

16. **Metabolism in Gout.**—An analysis of the case reported by Futcher suggests, he says, the close parallel relation between uric acid and phosphoric acid excretion in gout, and favors the view that both are products of nuclein disintegration. In the quiescent intervals both phosphoric acid and uric acid are markedly reduced below normal. Two or three days after the acute arthritic symptoms commence the phosphoric acid and uric acid gradually increase until they reach the average normal output, or even its upper limit and fall again as the acute manifestations subside.

17. **Tuberculosis in Children.**—The point chiefly made by Price-Jones is that alimentary tuberculosis, so-called, is not necessarily from the ingestion of milk, but more probably from human tuberculous bacilli. He thinks it would be advisable to have bacilli causing alimentary tuberculosis isolated and studied to determine whether they are always the same organism and what relation they bear to organisms found in milk from cows with tuberculous udders and to other so-called varieties of tubercle bacilli.

Journal of Tropical Medicine, London.

August 1.

25 *Notes on the Genus Stegomyia (Theobald) and Its Distribution. F. V. Theobald.

25. **Stegomyia.**—Theobald describes the genus *Stegomyia* and its various species with their distribution, pointing out the characteristic features of *Stegomyia fasciata*, which is the most important of the species owing to its wide distribution and abundance. Only three species may be said to be abundant: *notoscripta*, which is common in parts of Australia; *scutellaris*, abundant in India, the Malay states, China, Japan, etc., and *fasciata*, probably originally an American species, but spread almost all over the world. There is only one other species, *sugens*, that is at all widely distributed, and that is rare. He thinks it probable that the two next abundant species after the fasciata may also, under favorable conditions, become transmitters of the yellow fever germ and carriers of the disease.

Archiv f. Klin. Chirurgie (Langenbeck's), Berlin.

Last indexed page 526.

26 (LXX, No. 1.) *Ueber die subphrenischen Abszesse mit Bericht über 60 operierte Fälle. Grüneisen.
27 *Ueber Pneumokokken-Peritonitis. Jensen (Copenhagen).
28 *292 Operations for Urinary Calculi. Dsirne.—Bericht über 292 Blasensteinoperationen.
29 *Zur Frage der Behandlung der tuberkulösen Peritonitis. Friedländer.
30 Die Luxation des Nervus ulnaris. Momburg.
31 Operative Treatment of Occlusion or Constriction of the Intestines. Prutz.—Ueber die Enteroanastomose, speziell die Ileokolostomie, in der Behandlung der Verschlüsse und Verengerungen des Darmes.
32 Contraction of the Mesentery. Brehm.—Ueber die Mesenterialschrümpfung und ihre Beziehungen zum Volvulus der Flexura sigmoidea.
33 (No. 2.) Zur Früh-Operation der Appendizitis. Bornhaupt.
34 Hepatic Syphilis from Surgical Standpoint. C. G. Cumston (Boston).—Eine kurze Betrachtung der Lebersyphilis vom chir. Standpunkt.
35 *Experimental Study of Increase or Diminution of Germs in Accidental Wounds Treated by Aseptic and Antiseptic Methods. Gontermann.—Exp. Untersuchungen über die Ab- und Zunahme der Keime, etc.
36 *Experimental Research on Suture and Transplantation of Blood Vessels. Höpfner.—Ueber Gefässnaht, Gefässtransplantationen und Replantation von amputierten Extremitäten.
37 *Zur Technik der osteoplastischen Amputation. Frommer.
38 Results of High Incision. Wieting and Cassape (Constantinople).—Resultate des hohen Steinschnittes.
39 *Treatment of Anthrax with Collargol in Intravenous Injection. v. Baracz (Lemberg).—Zur Behandlung des Milzbrandes mit intravenösen Injektionen von löslichem Silber (Kollargolum) und über die Anwendbarkeit anderer löslicher Silberpräparate zu intravenösen Injektionen.
40 *Die Behandlung der Decanulements-Schwierigkeiten bei tracheotomierten diphtherie-kranken Kindern, mit bes. Berücksichtigung der "retrograden Intubation." Busalla (Altona).
41 Gangrene of Cecum from Distension. Kreuter.—Dehnungsgangrän des Coekum bei Achsendrehung der Flexura sigmoidea und bei Abknickung des Blinddarms.
42 Ueber Atresia ani congenita und die damit verbundenen Missbildungen. Stieda.
43 Askaris im Ductus choledochus. Choledochotomie. Neugebauer.

26. **Sixty Subphrenic Abscesses.**—Körte regards the pleural mode of intervention, with resection of ribs, as the best means of operative treatment of a subphrenic abscess. It affords better facilities for drainage, especially if the pleura is already infected. In case it is not infected the costal pleura may be sutured to the diaphragmatic pleura with a Volkmann suture, as he has done in 14 cases. Infection followed in only 4. He operated by the pleural route in 41 of his 60 cases. In 19 he opened the abscess from below, either from the front, side or lumbar region. In 27 the abscess proceeded from the appendix, in 9 from the stomach, in 2 from the biliary passages, in 4 from the pleura, in 1 from the pancreas, in 5 from the spleen, in 3 from echinococcus cysts in the liver, in 2 from a rib, and in 4 from the kidney. Of the total 60 cases only 40 recovered. He reviews the particulars in detail.

27. **Pneumococcus Peritonitis.**—Jensen announces that his numerous experiments on guinea-pigs inoculated in the abdomen with pneumococci have established that neither phagocytosis nor the bactericidal properties of the serum are the principal means of defense against pneumococcus invasion of the abdomen. Absorption is the main reliance of the organism. He found pneumococci in the blood in four minutes after they had been introduced into the peritoneum. Resistance to peritoneal infection is, therefore, the task of the general circulation, in which the entire organism shares. He reviews 20 cases from his own practice and 86 he has found in the literature, with 134 articles on the subject. His conclusions are that the peritoneum is most frequently infected with pneumococci from the intestines. He discovered these germs in the feces in several instances. A simultaneous or preceding pneumonia was only exceptionally noted. In children pneumococcus peritonitis is usually of the circumscribed, favorable variety, but in adults the diffuse form prevails and a concomitant pneumonic process is more frequently noted.

28. **Operations for Urinary Calculi.**—Dsirne has performed sectio alta in 106 and sectio mediana in 186 cases in the last eight years. The mortality has been 95 per cent. in the former and 1.6 per cent. with the latter. In after-treatment it is very important to keep the urine acid, and this he accomplishes by administering sodium salicylate and salol. If the urine is normal he sutures at once; if not, he inserts a permanent catheter, unless the patient is a young child. With much altered urine he drains the bladder through the perineal wound. He rejects sectio mediana for small children as it is impossible to work through the bladder outlet without injuring it, as also in case of stones too large to be extracted in this way.

29. **Tuberculous Peritonitis.**—Friedländer rather scoffs at the idea that laparotomy has a curative action in this affection. Many cases recover spontaneously, and a laparotomy may be useful to remove a stagnating exudate after the inflammation has subsided, and also to evacuate a pus pocket. To prevent a subsequent fistula adhesions should be spared as far as possible.

35. **Dry Asepsis Versus Moist Antisepsis.**—This communication from v. Bergmann's clinic is valuable testimony in favor of dry asepsis. For treatment of accidental wounds dry iodoform gauze deserves the preference, as it absorbs blood and secretions while at the same time having a destructive action on bacteria. The number of germs diminished much more rapidly in suppurating wounds under dry than under moist dressings. Many accidental wounds with large quantities of germs heal with no symptoms of inflammation.

36. **Surgery of Blood Vessels.**—From the same clinic extensive experiments on dogs are reported, undertaken to test the value of Payr's absorbable magnesium prothesis. The results were all favorable when the artery was over 3 mm. in diameter. Smaller than this the experiments always resulted in thrombosis. Höpfner commends the prothesis for injuries of large vessels in which more than one-half of the circumference is involved. He also reports successful transplantation of the carotid artery into the femoral, and *vice versa*, on the same animal and from dog to dog. Attempts to transplant a vein into an artery always resulted in aneurismal dilation of the vein and thrombosis. Experiments with transplantation of vessels from one species into another also all failed. He reports further that an amputated hind leg was sutured into place again, the artery united by a circular suture. In 2 dogs gangrene followed, but in a third the animal survived, succumbing the eleventh day to chloroform.

37. **Technic of Osteoplastic Amputation.**—The flap of bone and periosteum in an amputation according to Bier frequently sloughs off. Frommer thinks that if the skin is included in the flap the better nutrition ensures better results. He describes 30 cases thus treated, with faultless stumps.

39. **Collargol in Anthrax.**—Baracz reports 3 severe cases of anthrax that yielded with surprising promptness and completeness to intravenous injection of collargol. Experimental anthrax in rabbits, however, did not seem to be modified by this treatment. He attributes this inefficacy to the smallness of the doses, and insists that larger amounts can be administered than those hitherto employed. He tested on dogs all the other preparations of colloid silver, concluding that collargol is of them all the most harmless and the most effectual. No by-effects were observed except the inevitable chill.

40. **Retrograde Intubation.**—Busalla describes 3 cases of granuloma formation or protrusion of the tracheal wall, preventing the discarding of the tracheal tube. He succeeded in inducing atrophy of the granuloma, etc., by adopting v. Cackovic's method of retrograde intubation, that is, inserting a rubber drain, 4 cm. long, through the tracheal wound, one

end passing into the trachea, the other end into the larynx, and held in place by a silk thread tied around the middle of the drain and fastened to the neck.

Beitraege zur Geb. und Gyn. (Hegar's), Leipsic.

Last indexed XL, page 1687.

44 (VII, No. 2.) *Tier Suture of Abdominal Incision. R. Werth (Kiel).—Ueber die Etagennacht der Bauchwunde.
45 Correlations of Sexual Glands and Sex Determination. A. Hegar (Freiburg i. Br.).—Korrelationen der Keimdrüsen und Geschlechtsbestimmung.
46 *Ueber die Tampon-Drainage der Beckenbauchhöhle bei Laparotomien. A. Döderlein (Tübingen).
47 *Zur Frage der Drainage bei Laparotomien. H. Fehling (Strasburg).
48 Lacerations of Uterus During Pregnancy. Baisch (Tübingen).—Ueber Zerreissungen der Gebärmutter in der Schwangerschaft.
49 Embryologic Study of Formation of Allantois. H. Knoop (Leyden).—Ueber eine frühzeitige amniotische Missbildung, nebst Bemerkungen über das Wachsthum der Eihäute nach dem Frucht-Tode und die Bildung der sogen. freien Allantois.

44. **Tier Suture of Abdominal Wall.**—Werth has examined lately 393 patients out of his total of 1,338 laparotomies. In 279 the operation had been performed from one to fifteen years previously. Hernia had followed in 13 of the 393, but in only 5 was it a cicatricial hernia, and in these cases there had been suppuration of the laparotomy wound. He always uses "cumol catgut" and keeps his needles in pure lysol. In 19 cases no adhesions were found at a second laparotomy, while in 17 they were noted.

46. **Tampon Drainage After Laparotomies.**—Döderlein has drained through the posterior vaginal vault 161 times in 754 laparotomies, draining through the abdominal incision in only 12. His operative mortality was 3.7 per cent. The mortality in 593 cases not drained was 2.3 per cent., and of the others 8.7 per cent., the difference due to the severity of the lesions. The most unfavorable results were observed with suppurative processes.

47. **Drainage After Laparotomy.**—Fehling prefers abdominal drainage, and resorts to the vaginal only after a Werthheim operation or colpotomy. He drains by Mikulicz's technic, and reports that he used it in 36 out of 327 laparotomies, his total mortality being 4.5 per cent.

Hospitalstidende, Copenhagen.

Last indexed page 137.

50 (XLVI, Nos. 19-20.) *Laryngeal Tuberculosis in Case of Pregnancy. N. Godskesen.—Strubetuberkulosen under Svangerskab og Födsel.
51 *"Side" Adenoid Vegetations and Instrument for Their Removal. J. Möller.—Om Sidevegetationerne i Naesesvaelget samt Beskrivelse af et Instrument til deres Fjaernelse.
52 (Nos. 21-22.) *Experimental Cancer Research. C. O. Jensen.—Exp. Undersögelser over Kraeft hos Mus.
53 (No. 23.) Ulcus simplex vesicæ. S. Nordentoft.
54 (No. 24.) *Treatment of Lupus with Refrigeration. P. Sorensen.—Behandling af Lupus med Frysning.
55 (No. 25.) Et Tilfaelde af Endarteritis obliterans hos en 32 aarig Mand. V. Christiansen.
56 Leukocytæmi og Appendicitis. E. Müller.

50. **Laryngeal Tuberculosis in Pregnancy.**—Godskesen reviews 55 cases, only 24 of which have been previously published, and analyzes his own material, which is included. On the basis of these experiences he formulates the principles for procedure as induction of abortion in the early months of the pregnancy, and later, careful supervision with tracheotomy at the right moment. The dangers of pregnancy in case of laryngeal tuberculosis are shown in the series of 31 previously unpublished cases which he has collected, including 1 reported by V. Pleth of Chicago. The death of the mother soon after delivery is mentioned in all but 5 or 6, and in only 7 did the child survive. The pregnancy ran its course to term in 25 out of 46 cases. In 26 the child was delivered alive, and in 23 instances it proved to be healthy. The patients died undelivered in 3 cases and abortion occurred in 5. In 8 delivery took place four to six weeks before term, in 2 of these artificially induced. The insidious beginnings of laryngeal tuberculosis and its rapid development under the influence of pregnancy should rouse the physician to be on the alert at the slightest symptoms attracting attention to the throat, especially in patients who have apparently recovered from a tuberculous throat or lung lesion. In 26 cases the laryngeal tuberculosis commenced during the pregnancy usually during the first half. In 7 cases the affection had existed prior to the pregnancy, but had caused no alarming symptoms until then, and in the others the pregnancy did not seem to materially affect the lesion in the throat. The lungs were involved in nearly all the cases, but the throat lesion was predominant. In 35 local treatment or an endolaryngeal operation was alone attempted. In 2 a tuberculous circumscribed tumor was successfully removed. Tracheotomy was done in 8, laryngo-fissure in 3 and subhyoid pharyngotomy in 1. The tracheotomized patients were in the fifth or sixth month one each, and 2 each in the seventh, eighth or ninth month of the pregnancy. Three died soon after the abortion or delivery; 2 were dismissed in comparatively good health after delivery; 2 died nearly two years later from the progress of their tuberculosis and one is still alive after eight years. These results are encouraging, as this operation is undertaken only in the severer cases. There is no doubt but what more of the children might have been saved if tracheotomy had been done more frequently.

51. **"Side Adenoids."**—In 200 operations for adenoids undertaken at Mygind's clinic during the last year, the vegetations were what he calls "side adenoids" in 9 cases. In his private practice the number was 11 in 120. Some of the patients were 30 to 40 years old. The symptoms seem to be about the same as with the ordinary vegetations. He gives cuts of a couple of adenotomes especially adapted for reaching these "side adenoids." They seem to resist the tendency to atrophy more than ordinary vegetations.

52. **Experimental Cancer Research.**—Jensen has continued his studies of malignant tumors on white mice and now announces that he has succeeded in transmitting through 22 generations a tumor growth originally derived from cells of a melano-sarcoma on a horse. He gives photogravures of one of the mice showing the external aspect and the dried specimen of one of the tumors, which swelled the animal to nearly twice the normal circumference of the body back of the front legs. He also gives 14 cuts of the histologic findings. They indicate a pronounced carcinomatous structure, but there was no evidence of metastasis. The tumors continued to grow until the animals died from cachexia or from ulceration of the testicles. The tumors were transmitted from one generation to another by transplantation, and the transplantation was successful in 40 to 50 per cent. of all the attempts on white mice, but failed on other animals except on a few ordinary mice. There was not the slightest evidence in favor of a parasitic action.

54. **Treatment of Lupus with Refrigeration.**—Sorensen reports that he has treated 6 cases of lupus to date with a freezing application, spraying the parts with ethyl chlorid, as practiced by Detlefsen. Such remarkable improvement was obtained that he thinks we can rank the Detlefsen with the Finsen method of treating lupus as a notable progress. He regards the Finsen as the standard method, but in cases in which a course of Finsen treatment is impracticable, the freezing method enters on its rights. It is peculiarly adapted for private practice. The sittings are daily at first, then with longer intervals.

Upsala Laekareforenings Foerhandlingar.

57 (VIII, Nos. 3-6.) *Traumatic Injuries of the Semilunar Cartilage in the Knee. E. Bovin.—Om traumatiska meniskrubbningar i knäleden.
58 *Diagnosis of Lung Affections. I. Hedenius.—Bidrag till lungsjukdomarnes diagnos och Kasuistik.
59 Oxidation Processes. T. Thunberg.—Om de fysiologiska oxidationsföreteelserna.
60 *Saline Infusion in Acute Anemia. F. Zachrisson.—Kliniska studier öfver den intravenösa och subkutana saltvatteninfusionens värde vid akut anemi.
61 Ar Unverrichts s. k. familiära myokloni en klinisk entitet, som eger berättigande inom nosologien? H. Lundborg.

57. **Traumatic Injuries of Meniscus.**—Bovin has found in the literature reports of 163 cases of total or partial extirpation of the meniscus on account of traumatism. He tabulates the details of 148 of them; all but 26 were cases of rupture. He further gives the complete history of 10 cases he has personally observed and treated. He also gives his conclusions in regard to the physiology and anatomy of the meniscus from the study of 15 fresh and 36 formalin-hardened specimens. He affirms that

the meniscus is not a rigid and unyielding body, but changes its shape and position under the influence of traction and pressure. Twelve photogravures accompany the comprehensive article. The median meniscus is found injured much more frequently than the lateral, and isolated rupture of the capsular insertion was the most frequent of all. A recent injury of the meniscus is often mistaken for an internal sprain or contusion with hemarthrosis or for acute traumatic synovitis. An old injury may be mistaken for a free or pedunculated body in the joint or other lesion. The slightest suspicion of recent injury of the meniscus imposes the necessity of immobilization and bed rest for three or four weeks after the dislocated cartilage has been replaced. In chronic cases an operation will usually restore normal function to the joint. An old injury of the meniscus left to itself is liable to seriously compromise the function and entail chronic synovitis, and possibly arthritis deformans. The meniscus was sutured in 39 cases, and in 6 there was recurrence. Infection and ankylosis occurred in 2 and protracted convalescence in 1. The longer manipulations required for suture increase the probabilities of infection. Effusion requiring tapping a few times followed in one case. In 2 others the movements of the joint were somewhat restricted, probably from the longer mobilization required after suturing than after extirpation. Bovin resorted to suture only once. This was a case of recurrence of the disturbances after partial resection. The fragment of the meniscus that had been left was sutured to the capsule with perfectly satisfactory results.

58. **Diagnosis of Lung Affections.**—Hedenius warns that we must not rely too much on the physical signs in diagnosing tuberculosis. He mentions that the muscle sounds in the esophagus are liable to deceptively simulate râles, and describes a case in which the physical signs indicated apical catarrh, and a "congestion bronchitis" was found localized in the apex, but no traces of tuberculosis could be detected. Death had occurred in consequence of heart disease, and special care is necessary in determining the significance of the physical signs in the lungs in case of heart disease or with emphysema or curvature of the spine. In another case he describes the *Streptococcus longus conglomeratus* was apparently alone responsible for the symptoms and lesions, bronchopneumonia with multiple abscess in the lungs, diffuse sero-fibrinous pneumonia and empyema at three points in the wall of the thorax, suggesting actinomycotic infection. An abscess was also found in the thalamus opticus.

60. **Saline Infusion in Acute Anemia.**—In this second part of Zachrisson's study he reviews 20 cases he has found on record in which saline infusion proved a life-saving measure in acute anemia. He comments with surprise on the fact that all but 2 were published by American or English writers, and also on the invariable success of the measure. The unsuccessful cases are probably not published, he adds. He reviewed 7 cases from his own experience in the first part of his article.

Gazzetta degli Ospedali, Milan.

Last indexed page 70.

62 (XXIV, No. 44.) *Sulle sostanze estrattive riduttrici delle urine nella pellagra ed in altri stati morbosi. L. Lucatello.
63 *Auto-emolisi da alcool. S. Mircoli and A. Gervino.
64 Sul fenomeno dell' agglutinazione del sangue (of the blood). E. Gilardoni.
65 (No. 47.) *Applicazione all' uomo del siero antipneumonico Tizzoni-Panichi. L. Panichi (Bologna).
66 Granulazione iodofile e granulazione eosinofile. Tarchetti.
67 *Contributo allo studio delle cause di morte improvvisa nei bambini. G. Segadelli.
68 *Treatment of Pyemia with Iodized Milk. G. Santoro.—Sulla cura della pioemia col latte iodato Sclavo.
69 (No. 50.) *L'intervento chirurgico nelle nefriti mediche. D. Maragliano.
70 Influence of Ichthyol on Elimination of Sulphur in the Tuberculous. G. Radice (De Renzi's clinic, Naples).—Influenza dell' ittiolo sulla eliminazione dello zolfo nei tubercolotici.
71 *Il guaicolo nella parotite epidemica. M. Ragazzi.
72 Emoglobinuria dei malarici. A. De Blasé.
73 (No. 53.) Contributo alla casuistica della sieroterapia antistreptococcica. A. Montini.
74 E. Maragliano's Address at Madrid Congress on Tuberculosis.—La lotta e la immunizzazione dell' organismo contra la tubercolosi.
75 (No. 56.) La causa della malattia dominante nei polli (in poultry). G. Catterina.
76 Anemia infantile post-vaccinica. M. Bellotti.
77 *Sulla sutura delle arterie. A. Salomoni.
78 *Sulla siero-terapia della tubercolosi polmonare. F. Piera.
79 Un caso acuto di tetano reumatico. A. Bussi.
80 (No. 59.) *La fisiopatologia del pancreas in rispetto al diabete ed alla glicosuria. N. De Dominicis.
81 (No. 62.) *Diagnosi della tubercolosi incipiente. S. Ceraulo.
82 *Tuberculosis Cured by Intercurrent Infection. T. Silvestri.—Può la tub. polm. arrestarsi e guarire per il sopraggiunzere di una nuova infezione?
83 Situs viscerum inversus. A. Lamari.
84 (No. 63.) *Clino psycho-terapia dell' isterismo e della neurastenia nella pratica ospitaliera. S. Arnaud.

62. **Reducing Power of the Urine in Diagnosis.**—Lucatello tabulates the fluctuations in the reducing power of the urine in different diseases, and urges wider use of this simple approximative test of the elimination of the extractives. He illustrates the Bufalini apparatus for the purpose, which is a modification of Gerhard's.

63. **Auto-Hemolysis from Alcohol.**—Mircoli noticed in a certain hard drinker that sudden suspension of liquor was followed by hemoglobinuria, which vanished at once when the man resumed his alcohol. Tests on some rabbits also showed that the serum was blood-stained after ingestion of a small amount of alcohol daily for three months. There was no hemoglobinuria, but the proportion of urobilin was abnormally high. He thinks that the alcohol causes hemolysis, but that the rabbit kidney, being comparatively healthy and vigorous, transforms the bilirubin into urobilin. This occurred also in the hard drinker first mentioned, except when his exhausted and probably pathologic kidney missed the accustomed stimulus of its daily quantum of alcohol. The rabbit blood under the influence of the alcohol also lost its coagulating power almost entirely. These effects of the alcohol on the blood are not direct, as *in vitro* it does not dissolve the reds nor prevent coagulation. They suggest that alcohol should be avoided when there is a tendency to hemophilia.

65. **Antipneumonia Serum.**—Tizzoni's serum is derived from rabbits, and he has had only a small quantity at his disposal. The results of its application in 7 clinical cases are described in detail. It was given by intravenous injection and never produced the slightest inconveniences of any kind. The smallness of the dose prevented any disturbance of the circulation. His subjects were from 14 to 42 years old, and the injections were commenced the second to the fifth day of the disease. In three patients there were malarial antecedents. The beneficent action of the serum was unmistakable, rendering the entire syndrome milder, the expectoration looser. The softening effect on the sputa and its easier expulsion resemble the effect of antidiphtheria serum on the false membranes. All of the patients injected before the fifth day showed marked benefit, but one not treated until the fifth to seventh days did not seem to be affected.

67. **Causes of Sudden Death in Infants.**—Segadelli argues to prove that reflex inhibition from a mild gastro-intestinal catarrh may be a cause of sudden death in an infant, and describes a case which he thinks belongs in this category. The catarrhal affection had been so slight that it had failed to attract attention and was revealed only at the autopsy.

68. **Iodized Milk in Pyemia.**—Professor Sclavo of Siena prepares an iodized milk by adding iodin and albumin to milk freed of its fat, and sterilized. It can be administered by the mouth or by subcutaneous injection, and has proved a remarkably effectual means of giving iodin, especially in local tuberculosis, exophthalmic goiter, digestive disturbances, etc. The Italians attribute to iodin the property of augmenting the organic resisting powers, enabling the tissues around a local lesion to maintain a more effectual defense. Sotis states that Sclavo's iodized milk promptly benefited 2 patients with chondroperichondritis and 1 with laryngeal stenosis, in the latter case rendering the projected tracheotomy unnecessary. It also aided in the cure of 2 cases of chronic suppuration of the ear, and Ferreri reports great advantage from it in sclerosis of the middle ear, syphilitic or otherwise. Other examples of the benefits from iodized milk in intoxication from an acute or chronic infection are being constantly reported, and Santoro here describes 2 cases of pyemia in which

the patients completely recovered after a daily injection of 10 c.c. of the iodized milk for 24 to 50 days.

69. **Surgical Treatment of Medical Nephritis.**—D. Maragliano reviews the work that has been done in this line, and prophesies a brilliant future for the operation of nephrolysis as possibly equally effective while much less serious than nephrotomy. He adds that no clinical experiences with it have yet been published.

71. **Guaiacol in Mumps.**—Grande has reported great relief from inunctions of the inflamed glands with a salve of 1 gm. guaiacol to 10 gm. each of vaselin and lanolin. Ragazzi corroborates the prompt benefit from its use; the pain subsides and the general symptoms become rapidly attenuated.

77. **Suture of Arteries.**—Salomoni mentions that Matas' method of suturing arteries closely resembles the method he reported in 1900 after long experimental testing. He aims to bring the endothelium on both stumps into extensive contact, passing the needle from without into the vessel on one lip, and from within outward on the other.

78. **Serum Treatment of Pulmonary Tuberculosis.**—Piera has used the Maragliano serum extensively, and states that his and others' experience has shown that serum treatment will cure all the cases of circumscribed tuberculosis, without cavities, and with or without fever. Also the diffuse forms of superficial inflammation, even although apparently very severe. The diffuse forms with infiltration are also curable under prolonged treatment, but the forms with cavities are not curable by this means.

80. **Physio-Pathology of the Pancreas.**—De Domenicis concludes his monograph with the statement that the destruction and elaboration of sugar may occur independently of the pancreas, indicating that other organs participate in these processes. Total destruction of the pancreas entails severe disturbances in the metabolism owing to the loss of this important factor in the processes of digestion. The liver suffers particularly from its loss, and secondarily the nervous system.

81. **Diagnosis of Incipient Tuberculosis.**—Ceraulo calls attention to the frequency of palpitations and of phosphaturia in commencing tuberculosis. He noted the former in 7 out of 11 cases, and the latter in 9. He did not find enlargement of the glands in the axilla as constant as these other signs.

82. **Tuberculosis Cured by Intercurrent Infection.**—Silvestri describes 3 cases which he thinks justify him in the assumption that a secondary streptococcus invasion of the lungs following a recently-established tuberculosis, rendered the tissues unfavorable for the tubercle bacilli. The consequence was that the latter died out, and when the patients had recovered from their streptococcus infection the tuberculosis was extinguished.

84. **Isolation, Bed-Rest and Psycho-Therapy for Neurasthenia, Etc.**—Arnaud lauds in high terms what he calls "Déjerine's modification of the Weir-Mitchell treatment." He has coined the term "clinopsychotherapy" for it and relates numerous instances to prove its value, even in a public hospital, for treatment of hysteria, neurasthenia and allied conditions. The psychotherapy is the most important feature, and its influence is amazingly enhanced by the other measures, as has been proven in 200 cases thus treated at the Salpetrière Hospital at Paris.

Medizinskoe Obozryenie, Moscow.

Last indexed XL, page 1618.

85 (LVIII, 19.) Mania. P. B. Gannushkin and S. A. Sukhanoff.—K utcheniyu o manii.
86 K kasuistikye oslozhenenii aneurismi aorty. P. S. Usoff.
87 *Patent Foods for Artificial Feeding in Surgical Practice. S. B. Vermel.—O primyenenii iskusstvennykh pitatelnykh, etc.
88 (No. 20.) *Treatment of Tuberculosis in Syphilitics. A. P. Langovoi.—O primyenenii protivosyphilititcheskova letcheniya u bolnykh, stradayushtchikh odnovremenno tuberkulezom i syphilisom.
89 Theoretical Study of Possibility of Applying Chemical Rays in Ophthalmology. A. A. Maklakoff.—Vosmozhnost primeneniya chem. lutchei svyeta v ophtalmologii.
90 Seventeenth Annual Index of Russian Medical Literature. Year 1901. Alphabetically arranged by subjects.
91 (No. 21.) *Treatment of Cancer in Pregnant Uterus. V. V. Uspensky.—Terapiya raka matki, oslozhennova beremennostyu.
92 Differentiation of Endometritis Dolorosa. D. L. Tchernekhovsky.—O rasposnavanii endometritis dol.
93 Case of Syphilitic Arthropathy in Tabes. I. A. Russloff.—K kasuistike zabolyebanii sustavov u tabitikov.
94 *Unusual Forms of Tabes. M. Lapinsky.—O ryedko vstryetchayushtchikhsya formakh spinnoi sukhotki.
95 *Treatment of Certain Forms of Chorea Minor with Antistreptococcus Serum. P. A. Preobrazhensky.—Lyetchenie vittovoi piyaski protivostreptokokkovoi syvorotkoi.
96 (No. 22.) *Nervous-cerebral Form of Grippe. V. T. Velyamovitch.—K kazuistikye nervno-mozgovykh form grippa.
97 *Treatment of Cancer of Pylorus. T. Rose.—K operat. lyetcheniyu raka privratnika.
98 (No. 23.) *Cholelithiasis. S. B. Vermel.—K kasuistike zheltchnokamennoi bolyezni.
99 *Pathology of Broad Ligaments. I. M. Lvoff.—K patologii shirokikh svyazok.
100 (No. 24.) *Symptomatology of Cerebral Syphilis. V. V. Muravieff.—K simptomatologii mozgovovo syphilisa.
101 Seven Cases of Congenital Hernia of Brain. D. E. Gorokhoff.—Sem slutchaev vrozhdennikh mozgovikh grizh (cephalom).
102 *Value of Mineral Waters in Cholelithiasis. M. I. Radkevicz.—Znatchenie mineralnykh vod pri letchenii cholelitiaza.

87. **Patent Foods After Surgical Operations.**—After operations on the gastrointestinal tract the question of feeding is of great importance. Vermel is convinced that the artificial foods on the market, such as somatose, sanatogen, tropon, etc., are useful only when given in combination with fats and carbohydrates, as they consist mainly of albumin. The patients are unable sometimes to tolerate them in large quantities, and small amounts fail to supply the necessary quota of calories. He prefers the ordinary articles of diet, milk, cream, eggs, alcohol, meat juice, sugar, etc., in the right proportions to supply the needed fat, albumin and carbohydrates. This method in his clinic has given the best results.

88. **Treatment of Associated Syphilis and Tuberculosis.**—The differential diagnosis between syphilis of the lungs and pulmonary tuberculosis is difficult, but differentiation is liable to be still more difficult when the two diseases are associated. Opinions differ as to treatment of this combination of syphilis and tuberculosis. Zakharin, Hiller and others believe that antisyphilitic treatment is dangerous in this case, but Neisser, Potain, Pospeloff and others advocate it. Langovoi reports 2 cases which prove the correctness of the latter view. The first patient was a man of 47 who contracted syphilis at 22 and tuberculosis of the lungs at 44. He was treated with potassium iodid—20 to 30 grains daily for two weeks with thirty inunctions of gray ointment, 45 grains daily, and after twenty-five days five inunctions of 60 grains each and then seven of 80. The general condition and all the symptoms improved under this treatment. The red corpuscles increased from 4,220,000 to 5,800,000 and the hemoglobin from 70 or 75 per cent. to 85 and 90 per cent. The cough and dyspnea subsided, but the tubercle bacilli were still found in the sputa. The antisyphilitic treatment had evidently done no harm and had much benefited the patient. The second patient was a man of 33, who entered the clinic on account of complete aphonia. The laryngoscope disclosed an ulcer on the right vocal cord assumed by one specialist to be of a tuberculous nature, while another diagnosed it as syphilitic. There was a history of syphilis contracted twelve years previously, and followed four years later by slight hemoptysis suggesting tuberculous infection of the lung. Symptoms of tabes dorsalis were also apparent on careful examination. The treatment consisted in inunctions of mercurial ointment of 50 to 80 grains each for fourteen days, with potassium iodid at the same time, 20 to 30 grains a day. All treatment was then suspended for two weeks, after which the inunctions were resumed, 80 grains daily, with potassium iodid internally for eighteen days. Examination of the larynx then showed the complete cicatrization of the ulcer, while the voice had returned to normal, and all traces of the tabetic symptoms had vanished. It was assumed that the patient had presented a syphilitic polyneuritis and meningitis, which induced compression of the nerve roots and this had been the cause of the tabetic symptoms. As the polyneuritis and meningitis improved under the antisyphilitic treatment the symptoms subsided.

91. **Treatment of Cancer in Pregnant Uterus.**—Uspensky has found that cancer in a pregnant uterus is especially

liable to involve early the pelvic glands, and, hence, prompt and radical surgical intervention is particularly necessary in such cases. The complication with pregnancy does not modify the indications. Vaginal extirpation is preferable, he thinks, and can be done up to the third or fifth month without reducing the size of the uterus. Up to the fifth or seventh month evacuation of the liquor amnii is usually sufficient for the purpose, but later than this the fetus must be extracted. If viable, vaginal cesarean section is indicated, followed by total extirpation of the uterus.

94. **Unusual Forms of Tabes.**—Lapinsky, in 5 cases, noted paralyses or pareses of the arms or legs as the initial symptoms of tabes, before sensory disturbances developed.

95. **Antistreptococcic Serum in Chorea.**—A girl of 18 exhibited a violent form of chorea minor, accompanied by retention of urine, temporary paralysis, aphasia and mental disturbances. As arsenic, chloral and bromids failed to relieve, and as streptococci were found numerous in the blood, treatment with antistreptococcic serum was attempted. After thirteen to fifteen injections the symptoms abated and the patient recovered. A slight relapse was cured by Fowler's solution. The marked benefit from serum treatment in this case suggests that chorea minor may in some cases be due to infection and that the blood should be examined as a routine measure and polyvalent antistreptococcic serum used in appropriate cases.

96. **Nervous-Cerebral Forms of Grippe.**—The action of the grippal toxin on the brain substance is liable to induce intermittent fever and also pulsus tardus from its influence on the vagus center. These two symptoms are characteristic of la grippe, Velyamovitch believes, and reports a case to confirm this opinion.

97. **Operative Treatment of Cancer of the Pylorus.**—Rose urges prompt operation and reports two cases. In the first the patient was still in good health fifteen months after resection of the pylorus, rapidly recovering after the operation. In the second case gastroenterostomy was performed and the symptoms were relieved for fifteen months, after which slight evidences of recurrence of trouble were manifest. Free hydrochloric acid appeared in the stomach contents after intervention in both cases, and the lactic acid disappeared.

98. **Cholelithiasis.**—In one of the 3 cases described, the gallstones had developed under the influence of malaria, the parasite being found in the blood, and all symptoms vanished under quinin sulphate, 9 grains a day, supplemented by Fowler's solution. In another case the gallstone affection had lasted unrecognized for fifteen years, until the patient evacuated 3 gallstones in the feces and 146 more in the twenty following days, all without colics. A fistula had evidently formed between the gall bladder and duodenum. The patient had no further disturbances. About three weeks before voiding the stones the patient had taken six calomel powders of 2.75 grains each in the course of a day, and this had been followed by a mild course of specific treatment, as syphilitic antecedents were suspected. Five leeches and some Spanish flies had been also applied to the gall-bladder region. In cases in which small stones are suspected surgical intervention should not be considered unless medical treatment fails to produce good results soon. The differentiation is the chief difficulty.

99. **Pathology of Broad Ligaments.**—Lvoff reports 2 cases of fibroma of the broad ligaments, the surrounding organs intact, and 2 of echinococcus cysts in these ligaments. All were treated by extirpation of the affected ligament, with most satisfactory results. The ligament and fibroma in one case were removed through a posterior colpotomy, in another through a lateral colpotomy on the corresponding side. The echinococcus cysts were removed by a laparotomy in one case, supplemented in the other by posterior colpotomy on account of a concomitant parametritis.

100. **Cerebral Syphilis.**—In the 2 cases described mercurial and iodid treatment, supplemented by local blood-letting (Spanish flies to the neck) produced great improvement. In each case there were marked disturbances in the memory. This symptom is characteristic of Korsakoff's psychosis. Muravieff believes that it indicates a syphilitic affection of the brain.

102. **Value of Mineral Waters in Cholelithiasis.**—Radkevicz is convinced that mineral waters are fully as important as operative treatment for the cure of cholelithiasis. Surgical intervention does not exclude the possibility of relapses, but followed by treatment with mineral waters, it ensures a complete cure.

New Patents.

Patents of interest to physicians, July 21-August 11:

735660. Formaldehyde fumigator. Leon Feval, New Brunswick, N. J.
735670. Stethoscope holder. William Jones, Denver.
735276. Vaginal syringe. John R. Lane, New York City.
735542. Spirometer. Henry T. Lyttleton, Marshall, Texas.
735396. Machine for grading tablets. James M. MacDonald, Detroit.
735400. Surgical instrument. Richard P. McCully, Brooklyn.
735135. Invalid bed. William McLennan, Ogdensburg, N. Y.
735141. Surgical apparatus. George A. Ogle, Catonsville, Md.
735581. Therapeutic apparatus. Adrian Pollacsek and B. Beer, Vienna.
735591. Depurator. Lloyd H. Richards, El Paso, Texas.
735325. Hernial truss. Carl Weck and F. Weck, Grafrath, Germany.
735687. Electrotherapeutic apparatus. Scheuyler B. Zink, Portsmouth, Va.
735851. Therapeutic apparatus. Gerald L. Abell, Oakland, Cal.
736059. Device for administering anesthetics. George L. Bennett, Chicago.
736072. Arm rest for crutches. Harry S. Cole, Newtonsville, Ohio.
735860. Device for preventing flat feet. Catharine L. Darby, Brooklyn.
735723. Nebulizer. Thomas De Vilbiss, Toledo, Ohio.
735959. Respirator. Eugene Folkmar, Charlottenberg, near Berlin, Germany.
736086. X-ray tube. Robert Friedlander, Chicago.
735968. Massaging implement. Julius J. Grobe, Chicago.
736250. Making hemoglobin preparations. Friedrich Hanssen, Altona-on-the-Elbe, Germany.
735876. Hot water bottle. Joseph Holland, Akron, Ohio.
736111. Inhaling apparatus. Theodor Kautz, Bad Reichenhall, Germany.
736328. Sterilizable surgical instrument case. Helen P. Wilson, Vanwert, Ohio.
734213. Hot water bag. Joshua Barnes, Smithtown Branch, N. Y.
734252. Lung testing apparatus. Paul von Boeckmann, New York City.
734159. Stethoscopic instrument. Robert C. M. Bowles, Boston.
734302. Siphon filler. Henry Carmichael, Malden, Mass.
734229. Fumigating and disinfecting device. George F. Hardinge, Vineland, N. J.
734323. Bottle closure. William Harrison, Redhouse, W. Va.
733977. Massage apparatus. Francis G. Lagerstrom and A. G. Anderson, Salina, Kas.
734270. Eye shade. Orlando B. Lester, Washington.
734238. Depurator. Augustus W. Ottignon, Seattle.
12133. Reissue. Massage machine. Charles Pfanschmidt and J. Siefert, Chicago.
734498. Dilating bougie. Friedrich R. Bachler, Oxnard, Cal.
734663. Ointment or pill slab. William Bower, Olney, Ill.
734849. Making sulphuric acid. Gustave Gin, Paris.
734586. Obstetrical instrument. Hiram Mendenhall, Audubon, Iowa.
734926. Artificial foot. William F. Mumberg, Chicago.
734952. Massage apparatus. John A. Reade, Jr., Chicago.
735043. Sanitary pocket cuspidor. John Tobin, Brooklyn.

The Public Service.

Navy Changes.

Changes in the Medical Corps of the Navy, for the week ending August 15:

A. A. Surgeon P. L. Cooke, detached from the *Chesapeake* and ordered home to wait orders.

Surgeon J. M. Edgar, detached from the *Wabash* and ordered to the Asiatic Station with a detachment of marines, leaving Washington August 24.

Surgeon G. B. Wilson, detached from the Naval Hospital, Chelsea, and ordered to the *Wabash*.

Asst.-Surgeon R. W. Bachmann, detached from the *Solace* and ordered to the Naval Station, Guam.

Marine-Hospital Changes.

Official list of the changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the fourteen days ended Aug. 6, 1903:

Assistant Surgeon-General W. J. Pettus, granted leave of absence for twenty days from August 10.

Surgeon H. W. Austin, granted leave of absence for one month from August 6.

Surgeon H. R. Carter, granted leave of absence for one month from August 4.

Surgeon J. B. Stoner, granted extension of leave of absence for one month from August 1.

Surgeon J. M. Gassaway, granted leave of absence for two months from August 10.

Surgeon Fairfax Irwin, granted leave of absence for two months from September 5.

Surgeon D. A. Carmichael, to proceed to Washington, D. C., and report to director of the Hygienic Laboratory for special instructions.

P. A. Surgeon B. W. Brown, granted leave of absence for fifteen days from August 12.

P. A. Surgeon J. M. Eager, detailed to represent the service at the International Congress of Hygiene and Demography at Brussels, Belgium, Sept. 3-8, 1903.

P. A. Surgeon H. W. Wickes, granted leave of absence for one day, August 15.

P. A. Surgeon L. L. Lumsden, relieved from temporary duty at San Juan, P. R., and directed to proceed to Vineyard Haven, Mass., and assume temporary command of service during absence of Surgeon D. A. Carmichael.

P. A. Surgeon J. A. Nydegger, relieved from duty at Sault Ste. Marie, Mich., and directed to proceed to the Immigration Depot, New York, N. Y., and report to Surgeon G. W. Stoner for assignment to duty.

P. A. Surgeon J. F. Anderson, to proceed to Marietta, Conewaga and Swiftwater, Pa., and Baltimore, Md., for special temporary duty.

Asst.-Surgeon C. E. Decker, placed on waiting orders from August 1.

Asst.-Surgeon W. K. Ward, granted leave of absence for ten days from August 25.

Asst.-Surgeon C. E. Decker, granted extension of leave of absence, on account of sickness, for fifteen days from July 15.

Asst.-Surgeon T. F. Richardson, to proceed to Tampico, Mexico, for special temporary duty.

Asst.-Surgeon C. E. D. Lord, to proceed to Seattle, Tacoma, Port Townsend and Sumas, Wash., Victoria and Vancouver, B. C., Portal, N. D., and Winnipeg, Manitoba, for special temporary duty.

Asst.-Surgeon C. W. Wille, to proceed to Baltimore, Md., and assume temporary command of the service during the absence, on leave, of Surgeon H. R. Carter.

Asst.-Surgeon L. P. H. Bahrenburg, on the arrival of A. A. Surgeon Norman Roberts at Chicago, to proceed to New Orleans and report to medical officer in command for temporary duty.

Asst.-Surgeon A. M. Stimson, granted leave of absence for seven days from July 28, 1903, under paragraph 191 of the Regulations. Granted extension of leave of absence for seven days from August 5.

Asst.-Surgeon W. K. Ward, granted leave of absence for two days from July 30, 1903, under paragraph 191 of the Regulations.

Asst.-Surgeon A. D. Foster, to proceed to St. Louis and assume temporary command of the service during the absence, on leave, of Surgeon J. M. Gassaway.

Asst.-Surgeon Norman Roberts, to report to medical officer in command at Chicago for duty and assignment to quarters.

Asst.-Surgeon G. L. Collins, to proceed to the Immigration Depot, New York, and report to Surgeon G. W. Stoner for duty.

Asst.-Surgeon H. G. Ebert, to proceed to Fort Stanton, N. M., and report to medical officer in command for duty and assignment to quarters.

Asst.-Surgeon W. M. Wightman, to report to medical officer in command at San Francisco quarantine for duty and assignment to quarters.

Asst.-Surgeon H. M. Manning, to proceed to Stapleton, N. Y., and report to medical officer in command for duty and assignment to quarters.

Asst.-Surgeon F. C. Smith, to proceed to the Immigration Depot, New York, and report to Surgeon G. W. Stoner for duty.

A. A. Surgeon B. J. Brown, Jr., granted leave of absence for two weeks from August 4.

A. A. Surgeon J. M. Delgado, granted leave of absence for seven days from August 5, under provisions of paragraph 210 of the Regulations.

A. A. Surgeon F. Duffy, granted leave of absence for ten days from August 12.

A. A. Surgeon C. M. Frissell, granted leave of absence from August 6 to 18.

A. A. Surgeon R. S. Primrose, granted leave of absence for fifteen days on account of sickness.

A. A. Surgeon W. L. Savage, granted leave of absence for thirty days from August 6.

A. A. Surgeon P. N. Barnesby, granted leave of absence for one month from August 6.

A. A. Surgeon W. A. Kimmet, granted leave of absence for two days from July 25, 1903, under paragraph 210 of the Regulations.

Pharmacist F. A. Southard, on being relieved by Pharmacist C. R. McBride, to proceed to Washington, D. C., and report to the director of thee Hygienic Laboratory for duty.

Pharmacist M. H. Watters, granted leave of absence for twenty-two days from August 15.

Pharmacist C. R. McBride, to proceed to New York (Stapleton) and report to medical officer in command for duty and assignment to quarters.

Pharmacist Henry Gahn, detailed to represent the service at the fifty-third annual meeting of the Pharmaceutical Association, to be held at Mackinac Island, Mich., August 3. Reassigned to duty in the Purveying Depot, effective July 17.

Pharmacist A. M. Roehrig, detailed to represent the service at the fifty-third annual meeting of the Pharmaceutical Association, to be held at Mackinac Island, Mich., August 3.

Pharmacist W. L. Stearns, reassigned to duty at the Purveying Depot, effective July 17.

Pharmacist R. H. Gibson, granted leave of absence for seven days from July 29, 1903, under paragraph 210 of the Regulations.

Pharmacist L. W. Ryder, granted leave of absence for fifteen days from August 1.

Pharmacist M. H. Watters, relieved from duty in the Hygienic Laboratory and assigned to duty in the Bureau. To report to chairman of board of examiners at Washington, D. C., Aug. 10, 1903, for examination to determine his fitness for promotion to the grade of pharmacist of the second class.

Pharmacist L. P. Hall, granted leave of absence for thirty days from August 20.

BOARDS CONVENED.

Board convened to meet at Washington, D. C., July 27, 1903, for the consideration of the request of Asst.-Surgeon C. E. Decker to be placed on waiting orders on account of physical disability. Detail for the board: Assistant Surgeon-General A. H. Glennan, chairman; Assistant Surgeon-General L. L. Williams; Assistant Surgeon-General H. D. Geddings, recorder.

Board convened to meet at Washington, D. C., July 27, 1903, for the physical re-examination of an officer of the Revenue Cutter Service. Detail for the board: Assistant Surgeon-General W. J. Pettus, chairman; Assistant Surgeon-General H. D. Geddings, recorder.

Board convened to meet at Washington, D. C., August 10, 1903, for the examination of Pharmacist M. H. Watters to determine his fitness for promotion to the grade of pharmacist of the second class. Detail for the board: Assistant Surgeon-General L. L. Williams, chairman; Asst.-Surgeon A. J. McLaughlin, recorder.

APPOINTMENTS.

Norma Roberts, Pennsylvania; George L. Collins, Massachusetts; Harvey G. Ebert, Washington; William M. Wightman, California; Herbert M. Manning, District of Columbia, and Frederick C. Smith, Minnesota, commissioned as assistant surgeons (recess) in the Public Health and Marine-Hospital Service.

Charles R. McBride, Ohio, appointed pharmacist of the third class, Aug. 7, 1903.

PROMOTION.

G. W. Iltis, pharmacist of the third class, promoted to be pharmacist of the second class, effective April 24, 1903.

REINSTATEMENT.

William C. Phillips, reinstated as pharmacist of the third class.

SUSPENSION.

Pharmacist H. E. Davis, suspended from duty and pay for a period of thirty days from July 27, 1903.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended Aug. 15, 1903:

SMALLPOX—UNITED STATES.

Alabama: Mobile, August 1-8, 4 cases.
California: Los Angeles, July 25-August 1, 1 case; San Francisco, July 26-August 2, 3 cases.
Massachusetts: Fall River, August 1-8, 1 case, 1 death.
Michigan: Detroit, August 1-8, 3 cases.
Missouri: St. Louis, August 1-8, 6 cases.
Nebraska: Omaha, August 1-8, 1 case.
New Hampshire: Manchester, August 1-8, 1 case.
New Jersey: Camden, August 1-8, 4 cases.
Ohio: Cincinnati, July 31-August 7, 2 cases; Dayton, August 1-8, 3 cases; Toledo, August 1-8, 1 case.
Pennsylvania: Allegheny, August 2-9, 5 cases, 1 death; Altoona, August 1-8, 1 case imported from Virginia, via Washington City; Carbondale, July 24-31, 2 cases; McKeesport, August 1-8, 4 cases.
Utah: Salt Lake City, August 1-8, 2 cases.

SMALLPOX—FOREIGN.

Belgium: Antwerp, July 18-25, 3 cases.
Ecuador: Guayaquil, June 24-July 4, 1 sporadic case.
Colombia: Bocas del Toro, July 20-28, 1 case.
Great Britain: Bristol, July 18-25, 1 case; Leeds, July 18-25, 9 cases, 1 death; Liverpool, July 18-August 1, 12 cases, 2 deaths; London, July 11-25, 19 cases; Manchester, July 18-25, 7 cases; Nottingham, July 11-25, 10 cases.
India: Bombay, July 7-14, 14 cases; Calcutta, July 4-11, 1 case.
Mexico: City of Mexico, July 26-August 2, 7 cases, 4 deaths; Tampico, August 1-8, 2 deaths.
Netherlands: Amsterdam, July 25-August 1, 1 case, 1 death.
Russia: Moscow, July 11-18, 2 cases.

YELLOW FEVER.

Colombia: Panama, July 27-August 3, 3 cases, 1 death.
Costa Rica: Limon, July 23-30, 2 cases, 2 deaths.
Mexico: Tampico, July 24-August 8, 35 deaths; Vera Cruz, July 24-August 8, 91 cases, 29 deaths; Victoria, August 10, 1 case, 1 death.

CHOLERA—INSULAR.

Philippine Islands: Manila, June 13-20, 9 cases, 8 deaths; Provinces, June 13-20, 368 cases, 319 deaths.

CHOLERA—FOREIGN.

India: Bombay, July 7-14, 1 death; Calcutta, July 4-11, 35 deaths.
Straits Settlements: Singapore, June 13-20, 6 deaths.

PLAGUE—UNITED STATES.

California: San Francisco, July 29, 1 death.

PLAGUE—FOREIGN.

Australia: Queensland, Bundaberg, June 1, 1 case.
China: Hongkong, June 17-26, 52 cases, 47 deaths.
Egypt: Alexandria, July 5, 1 death; Port Said, July 13, 7 cases; Tantah, July 9, 4 cases.
India: Bombay, July 7-14, 68 deaths; Calcutta, July 4-11, 15 deaths; Karachi, July 5-12, 2 cases, 2 deaths.
Mauritius: July 2-16, 11 cases, 10 deaths.